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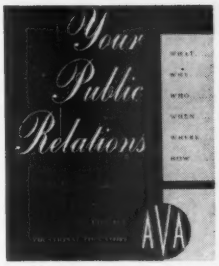

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PROGRESS IN VOCATIONAL EDUCATION

FACTS ARE REVEALED IN "DIGEST OF REPORTS"

EACH year there is published a "Digest of Annual Reports of State Boards for Vocational Education to the Office of Education, Division of Vocational Education." This digest of annual reports contains a tremendous amount of factual information about the progress and development of vocational education in the nation. It has limited distribution—going to only a few hundred people in leadership positions. In view of the above, it seems wise and desirable for the JOURNAL to carry this report setting forth some of the factual information contained in the latest "Digest of Reports" for fiscal 1960.

THIS LATEST "Digest of Reports" shows that there has been a tremendous and almost a continuous growth in vocational education since the passage of the Smith-Hughes Act in 1917. For example, the total enrollment in the federally aided program was only 164,186 in 1918; by 1938, the enrollment increased to 1,810,082; and by 1960 to 3,768,149.

It further shows that there are only a very few years since 1918 when the total enrollment in vocational education was less than in the previous year. This occurred in 1933, during the depth of the depression, when federal funds for vocational education were drastically cut; during two of the war years in the early 40s when most of the vocational effort was being devoted to war training programs and enrollments in these programs were not recorded as a part of the "Digest of Reports," and again in the early 50s when federal funds for vocational education were seriously reduced.

It is interesting to note that when cuts in federal funds occurred, similar cuts were made in state and/or local funds. This is an indication that federal funds must be continued and increased if adequate vocational programs are to be provided for a growing nation.

According to the report the following were the ten highest ranking states in total enrollment in vocational education in 1960: (1) California, 410,050; (2) Texas, 331,939; (3) New York, 197,158; (4) Georgia, 157,396; (5) North Carolina, 135,505; (6) Michigan, 134,849; (7) Florida, 126,644; (8) Ohio, 120,793; (9) Illinois, 112, 957; (10) South Carolina, 111,095.

A total of $3,039,061.15—including $832,426.82 of federal funds, $1,024,930.48 of state funds, and $1,181,703.85 of local funds—was spent in 1918 for vocational education. In 1960 the total expenditure was $238,811,764.65, which included $45,313,236.21 of federal funds, $82,465,778.12 of state funds, and $111,032,750.32 of local funds. As late as 1950, only $128,717,054.03 was spent for vocational education, including federal, state and local funds.

The following are the ten highest ranking states in total amount of funds (federal, state and local) spent for vocational education in fiscal 1960 as presented in the "Digest of Reports": (1) Texas, $19,458,064.74; (2) California, $17,093,941.81; (3) New York, $13,562,920.02; (4) Illinois, $9,998,183.78; (5) Pennsylvania, $9,949,973.25; (6) North Carolina, *(Continued on page 4)*

M. D. MOBLEY,
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COVER: When the Panel of Consultants on Vocational Education convened in Washington, D. C., Nov. 9, the Journal's photographer took this exclusive picture of the members and staff at the opening session. The panel members were welcomed by Dr. Sterling M. McMurrin, U. S. Commissioner of Education, seated at the center of the rear table. Dr. Benjamin C. Willis of Chicago, Chairman of the Panel, is seated left of Dr. McMurrin. For meeting report, see page 5.

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$9,428,041.15; (7) Massachusetts, $9,246,869.81; (8) Ohio, $8,209,655.01; (9) Florida, $8,153,416.39; (10) Michigan, $8,102,590.89.

★

FOR THE fiscal year 1960 according to the "Digest of Reports" the total enrollment for the nation in *vocational agriculture* was 796,237. The following were the ten highest ranking states in enrollment in vocational agriculture: (1) Texas, 109,261; (2) North Carolina, 54,461; (3) Georgia, 43,637; (4) South Carolina, 43,629; (5) Mississippi, 42,863; (6) Alabama, 35,080; (7) Oklahoma, 27,920; (8) Minnesota, 27,629; (9) Arkansas, 26,692; (10) Illinois, 25,879.

ENROLLMENT in programs of vocational education in the U. S. in 1960 totaled 3,768,149 students. This was a gain of 67,028, or 1.8 per cent, over the 1959 total.

The ten top ranking states in total enrollment in evening (adults) and part-time (young farmers) agricultural classes were as follows:

(1) Texas, 66,753; (2) South Carolina, 30,188; (3) Mississippi, 27,587; (4) North Carolina, 18,735; (5) Georgia, 17,723; (6) Alabama, 16,476; (7) Iowa, 15,195; (8) Minnesota, 14,055; (9) Illinois, 10,860; (10) Oklahoma, 9,703.

★

IN THE nation in 1960 a total of 303,784 were enrolled in *distributive education*. The following were the ten highest ranking states in distributive occupations: (1) California, 93,114; (2) Texas, 32,457; (3) Florida, 16,573; (4) Michigan, 14,763; (5) Ohio, 11,902; (6) Virginia, 10,701; (7) New York, 8,832; (8) Colorado, 7,451; (9) Georgia, 7,035; (10) Pennsylvania, 6,074.

The following are the top ten ranking states in total enrollment in 1960 in distributive education extension and post high school part-time cooperative classes:

(1) California, 91,891; (2) Texas, 27,465; (3) Florida, 15,890; (4) Michigan, 12,274; (5) Ohio, 10,941; (6) Virginia, 8,581; (7) Colorado, 7,050; (8) Georgia, 6,229; (9) Puerto Rico, 4,926; (10) Mississippi, 4,924.

★

THE TOTAL enrollment in the nation in *Home Economics Education* for fiscal year 1960, according to the "Digest of Reports," was 1,588,109. The ten top ranking states in enrollment in Home Economics were as follows: (1) California, 143,881; (2) Texas, 139,919; (3) Georgia, 78,442; (4) New York, 77,981; (5) Tennessee, 61,205; (6) Michigan, 56,703; (7) North Carolina, 55,432; (8) Florida, 54,560; (9) South Carolina, 54,137; (10) Arkansas, 52,539.

The ten top ranking states in 1960 in enrollment in evening (adults) and part-time classes in home economics were as follows:

(1) California, 97,846; (2) New York, 57,221; (3) Texas, 52,365; (4) Wisconsin, 35,035; (5) South Carolina, 34,291; (6) Massachusetts, 32,436; (7) Arkansas, 27,107; (8) Minnesota, 23,943; (9) Ohio, 23,613; (10) Georgia, 22,019.

★

THE TOTAL enrollment in *trade and industrial education* for the nation for 1960 was 938,490. The ten highest ranking states in total enrollment in this phase of vocational education in 1960 were as follows:

(1) California, 126,398; (2) New York, 96,160; (3) Texas, 43,065; (4) Pennsylvania, 42,562; (5) Ohio, 41,064; (6) Michigan, 40,954; (7) Washington, 39,357; (8) Florida, 34,369; (9) Wisconsin, 31,303; (10) Illinois, 29,449.

The following were the ten top ranking states in 1960 in enrollment in evening trades and industry classes and in related instruction for apprentices:

(1) California, 102,734; (2) New York, 48,576; (3) Ohio, 35,034; (4) Washington, 33,308; (5) Michigan, 31,771; (6) Texas, 30,756; (7) Florida, 20,410; (8) Georgia, 20,172; (9) Wisconsin, 18,441; (10) Colorado, 17,752.

EXPENDITURES from all sources for vocational education in the U. S. in 1960 totaled $238,811,764. This was $10,497,164, or 4.6 per cent, more than in 1959.

As for *practical nurse training* in fiscal 1960, a total of 40,250 were enrolled in the nation. The ten highest ranking states in total enrollment were as follows:

(1) Ohio, 4,149; (2) Pennsylvania, 2,836; (3) California, 2,672; (4) Alabama, 2,477; (5) New York, 1,940; (6) Texas, 1,889; (7) North Carolina, 1,520; (8) Louisiana, 1,421; (9) Florida, 1,281; (10) Tennessee, 1,254.

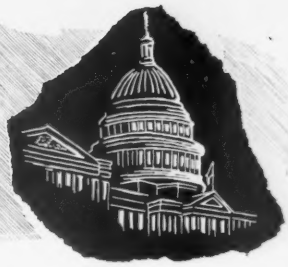
★

THE TOTAL enrollment for the nation in *area vocational programs* in 1960 was 101,279. The ten highest ranking states in total enrollment in area programs were as follows:

(1) California, 25,409; (2) Washington, 9,810; (3) Connecticut, 6,686; (4) Florida, 5,994; (5) Texas, 5,348; (6) Michigan, 4,473; (7) Minnesota, 4,357; (8) New Jersey, 3,293; (9) Pennsylvania, 3,149; (10) Wisconsin, 3,026.

SOME DAY the JOURNAL may carry a story that will show the rank of states in total enrollment in vocational education based on the relationship of enrollment to the total population of each state. ■

latest word from WASHINGTON



The first meeting of the PANEL OF CONSULTANTS ON VOCATIONAL EDUCATION was held in Washington, D.C. — Nov. 9, 10 and 11. All members (see November JOURNAL for complete list of the Panel) were present, except Charles W. Engelhard, Jr., of New Jersey, Charles O'Dell of Michigan, and James Patton of Colorado. They were unable to attend because of previous commitments made prior to the announcement of the first meeting of the PANEL. Dr. Benjamin C. Willis, General Superintendent of Chicago Public Schools, and Chairman of the PANEL OF CONSULTANTS, presided at the meetings.

Much of the time of the CONSULTANTS was consumed with reports by officials of the Department of Health, Education, and Welfare. Members of the PANEL with whom we have talked were exceedingly pleased with the presentations by vocational officials of the Office of Education They are reported to have done an excellent job in acquainting members of the PANEL with all phases of vocational education carried on in the nation's public schools.

President John F. Kennedy extended personal greetings in the form of a letter to members of the PANEL. It read as follows:

> "I extend my personal greetings and sincere appreciation to the PANEL OF CONSULTANTS ON VOCATIONAL EDUCATION. Yours is a challenging and vital responsibility. Your charge is to review and evaluate the current National Vocational Education Acts, in light of the occupational opportunities and vocational education needs of our Nation's economy, and to make recommendations for improving and redirecting this important segment of our country's educational program.
>
> "Our technological progress of the future will be measured by the quality of our manpower. We must seek out the best ways to organize and direct our laboratories of learning so that we may meet not only individual and community educational needs but also the manpower demands of our country and the world.
>
> "Your recommendations may well make a milestone of progress for American education in its endeavor to utilize manpower training facilities most effectively and in its efforts to tap the great resource of undeveloped skill and vocational capability of all our citizens, in the national and international interest.
>
> "Best wishes to you, and to your Chairman, Dr. Benjamin C. Willis, as you begin this significant effort."

Among those who appeared before the PANEL were the following: Secretary of Health, Education, and Welfare, Abraham A. Ribicoff; Assistant Secretary of Health, Education, and Welfare, Wilbur J. Cohen; Deputy Assistant Secretary of Labor, Seymour Wolfbein; U.S. Commissioner of Education, Sterling M. McMurrin; Acting Assistant Commissioner for Vocational Education, Walter M. Arnold; Congressman John E. Fogarty, Chairman of the Subcommittee on Appropriations that handles vocational appropriations; J. Chester Swanson, Staff Director for the PANEL; and Directors of the several branches of the vocational education division of the Office of Education.

The next meeting of the PANEL will be held in Washington, D.C., beginning

March 8, 1962. Between now and that date a series of informal regional conferences with interested groups in agriculture, labor, and industry will be held throughout the nation. These meetings have not yet been definitely scheduled. The regional conferences will afford opportunity for individuals and representatives of organizations in all parts of the nation to present their views on the future development of vocational education.

The PANEL agreed that its final report would be completed and placed in the hands of President Kennedy in November, 1962.

The PANEL recommendations, Dr. Willis said in the closing session, might well make a major contribution to the task of reducing increasing tensions in American society. Especial attention, he stressed, should be paid to the problems of automation which he called "a peril to the dignity of the individual worker."

In the same vein, Secretary Ribicoff warned that "nothing in all education is so important as this assignment." A major task facing the CONSULTANTS, Secretary Ribicoff felt, was to help in eliminating what he called "the unrealistic belief that to work with one's hands is not as dignified as to work with one's mind."

U.S. Representative John E. Fogarty (D.-R.I.), Chairman of the House subcommittee which considers appropriations for the Department of Health, Education, and Welfare (including vocational appropriations), assured the group of his "warm and heart-felt interest" in the conference. The time is ripe, Congressman Fogarty said, for abandoning the piece-meal approach to the problem.

U.S. Commissioner of Education, Sterling M. McMurrin, who addressed the opening session, declared that the nation can no longer afford to waste the abilities of large numbers of its people through inadequate or faulty job training. He added: "There is no reason why a person who follows vocational education should not have access to a liberal arts education — poetry, music, language."

The CONSULTANTS spent most of the three days listening to discussions of existing vocational programs promoted by the U.S. Office of Education by Acting Assistant Commissioner, Walter M. Arnold, and members of his staff. Dr. Seymour Wolfbein, Deputy Assistant Secretary of Labor, discussed the manpower needs of the 1960s.

The CONSULTANTS were particularly interested in statistics on the problem of "dropouts," high school students who fail to finish their studies and are, consequently, poorly prepared for employment.

From all reports we have received in the AVA office the PANEL is off to a good start. The members agreed that the final report should be short and to the point, probably not more than 30 pages. This seems to be an excellent decision since a short report will be read by many more people than would a long involved report.

Vocational educators and friends of the program everywhere should stand ready to cooperated wholeheartedly with the PANEL. They especially should be prepared to present their views as to present day and future vocational needs at regional conferences, which will be announced soon.

THE 55th ANNUAL VOCATIONAL CONVENTION — a great professional meeting — will be in full swing when you receive this issue of the JOURNAL. Happenings at the convention will be carried in some detail in the February, 1962, and subsequent issues of the JOURNAL.

We wish for all AVA members everywhere a Merry Christmas.

Sincerely yours,

M. D. Mobley

M. D. Mobley,
AVA Executive Secretary and
Editor-in-Chief

Here and There

Puerto Rico Certifies

The Puerto Rico Chapter of AVA has been certified by the Government of Puerto Rico. Congratulations for this fine achievement are due to the able officers of this chapter and the state vocational staff. The certification means that the membership fees of the teachers can be deducted from their payroll checks.

USAF Stresses Education

Quality of personnel and education are being stressed in the U. S. Air Force personnel procurement program, Brigadier General I. W. McElroy emphasized in a resume of fiscal year 1961 activities. During the past year USAF recruited 122,028 young men and women and 75 per cent of the airmen recruited were high school graduates.

"Our present objective for fiscal year 1962 is 129,000," reported General McElroy, commander of the USAF Recruiting Service. However, with the world situation as it is, this objective may be increased. Quality of personnel will be even more important because the people we recruit must have the mentality equal to the increasing sophistication of current and future air weapons systems."

Printing Teachers Counted

After more than two years of research, the International Graphic Arts Education Association, Washington, D. C., has compiled a list of more than 2,600 graphic arts and printing teachers for publication in a new directory. The association estimates there are more than 4,000 such teachers in secondary and vocational schools, technical institutes, teacher education institutes and colleges.

Pearl Harbor Ceremony

Dedication of the USS Arizona Memorial being constructed at Pearl Harbor, Hawaii, will be held on Memorial Day, 1962, the Department of Defense announced. The Memorial has been officially recognized by the Congress as "The December 7, 1941, Pacific Memorial" as a memorial to all those who lost their lives that day any place in the Pacific as a result of the Japanese attack. A "Twentieth Anniversary Memorial Ceremony" will be held on the USS Arizona platform on Dec. 7, 1961.

Code of Business Ethics

The Alpha Kappa Psi Foundation is offering three cash awards (totaling $600) for the composition of a Personal Code of Business Ethics. The competition is open to students and faculty members of schools or departments of business, economics, or industrial management, who are citizens of the U. S. or Canada.

Each entry, in not more than 2,500 words, should stress those ideals of personal and professional conduct in business which should be observed by the individual in order that he may be a credit and an asset to business, community, and nation as a businessman and as an American citizen. Details are available from the Alpha Kappa Psi Foundation, 111 E. 38th St., Indianapolis 5, Ind.

Historical Plays on TV

National Educational Television has announced a series of Shakespearean performances, "An Age of Kings," which represents one of the few times in this century that the connected historical plays of Shakespeare have been given a continuous, unified performance. The series consists of 15 television broadcasts on Friday evenings. The programs will be televised during the coming months through NET's nationwide network of more than 50 affiliated stations.

Guidance Program Planned

A panel discussion on "Implementing Vocational Development in the School Guidance Program" is to be held at the forthcoming convention of the American Personnel and Guidance Association. Lester J. Schloerb, Associate Superintendent in Charge of Administration, Chicago Public Schools, will serve as the chairman of this session. Approximately 20,000 guidance counselors from schools and colleges across the nation are expected to attend the convention, April 16 to 19, in Chicago.

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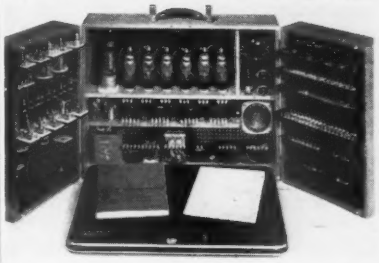

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NEWS ROUNDUP

Should Defense Act Funds Be Used on a Broader Basis for Vocational Training? Here are Poll Replies

Under date of May 2 the AVA office in its *Washington Letter*, that goes to some 4,000 leaders in vocational and practical arts education, solicited the advice of recipients of the letter on proposed amendments to Section 303 (a) (3) (the so-called Bush amendment) of Title VIII of the National Defense Education Act so that funds authorized under provisions of this Act might be used on a broader basis for vocational education. The AVA *Washington Letter* contained resolutions dealing with this matter by the House of Delegates and by the State Directors of Vocational Education, which were approved in December 1960.

The recipients of the letter were asked to answer several questions, the most important of which was the following:

Do you favor continuance of Section 303(a)(3) (the so-called Bush amendment) as presently worded in the existing law?

This provision of the law limits funds for the training of "highly skilled technicians in recognized occupations requiring scientific knowledge, as determined by the State Board for such State, in fields necessary for the national defense."

Here is a brief report on the replies to the question quoted above. A total of 889 replies were receeived. Of this number 51 voted "*yes*"—meaning they do not want the Bush amendment (Sec. 303(a) (3)) changed in any way. A total of 838 voted "*no*"—meaning they want the Bush amendment (Sec. 303 (a) (3)) amended so funds can be used on a broader basis.

A separate count of replies from State Directors was made. They voted as follows: six voted "yes"—meaning they want Section 303(a) (3) continued without change; and 31 voted "no"—meaning they want the provisions of this sectiton changed so funds may be used on a more comprehensive basis.

Connecticut College Offers Two-Year DE Program

For the first time in Connecticut, a two-year program in Distributive Education leading to an Associate in Science degree is being conducted at Central Connecticut State College in New Britain.

The program is a combination of classroom work and practical business experience. During two months of the third semester the student will be gainfully employed full-time in a distributive occupation.

Among the courses required are: marketing, principles of economics, consumer economics, business law, accounting, retailing, salesmanship, merchandising, advertising, sales promotion, and courses in general education.

Placement in middle-management positions with promotional opportunities will be handled by the college coordinator in cooperation with the Connecticut Consulting Committee for Distributive Education, which is composed of leaders in various distributive businesses throughout the state.

Todd Sagraves has been appointed Distributive Education placement and job-training coordinator for the statewide program.

"Employ a Youth" Leaflet Produces Good Results

A circular which has implications for leaders in the vocational educational field is designed to promote the employment of youth when they leave school. The leaflet, "Employ a Youth," was prepared by Detroit's Commission on Children and Youth, and has produced some satisfactory results in that city. Copies have been distributed to schools in the Great Cities School Improvement Program as other schools could prepare a similar publication applying to their areas.

Teachers' Welding Course Planned for Seventh Year

Hobart Brothers Technical School in Ohio has announced plans to conduct its seventh year of summer refresher courses in the art of teaching welding for industrial arts and vocational teachers. The one-week courses will be given during June, July and August. Teachers interested in the courses should write to Howard Cary, Director of Hobart Brothers Technical School, Dept. SH, Troy, Ohio.

IMPROVING CONTESTS AND AWARD PROGRAMS

IN VOCATIONAL AGRICULTURE

PAUL E. HEMP, *Teacher Education, University of Illinois*

Research in Illinois reveals need for the continuous revision of vocational agriculture and FAA contests

CONTESTS and award programs are used extensively in vocational agriculture courses and in FFA programs. Probably no vocational field has depended so much on competitive activities to motivate and stimulate students as the vocational agriculture group has.

Most teachers recognize that a continuous revision of contests is needed to keep them in line with modern farm practices. The suggestions for improving contests and award programs which are discussed in this article come from a research project which the writer recently completed.[1]

In order to find out what changes are needed in 30 contests and award programs the writer surveyed 100 Illinois teachers of vocational agriculture and 500 senior students of vocational agriculture. Personal contacts were made in each of the 25 sections of the state to find out the extent and nature of the contests and award programs in each section and to identify changes that had been made or changes which were contemplated.

Pertinent research findings from agriculture and education which have implications for contests and award programs were identified. Participation records of Illinois departments of vocational agriculture and the distribution of awards and honors among the departments of the state for the period 1955-59 were studied.

The contests and award programs included in this study were production awards for eight crop and livestock areas, improvement awards in five areas, judging contests, fairs and shows, parliamentary procedure and public speaking contests, State Farmer and Star Farmer awards, safety programs, and program of work contests. The writer restricted the analysis to local, sectional, district, and state contests and award programs.

Less than half of the 100 teachers surveyed rated poultry, grain, meat, and dairy products judging contests, poultry fairs, and program of work contests as excellent or good in terms of educational value. The five-point rating scale which teachers used in evaluating contests and award programs included "excellent," "good," "fair," "poor," and "no opinion."

State Farmer degrees, land use selection, production awards, livestock fairs, and public speaking contests were rated excellent or good in educational value by more than 75 per cent of the teachers included in this study. Twenty-three per cent to 36 per cent of the teachers surveyed favored the outright elimination of crops and poultry judging contests and grain and poultry shows.

[1] Paul E. Hemp, "An Analysis and Appraisal of FFA and Vocational Agriculture Contests and Award Programs in Illinois." Division of Agricultural Education, University of Illinois, 1961.

A group of vocational agriculture students test their skill at selection of the proper placing in a class of four swine.

One Future Farmer's collection of prize trophies and ribbons.

Next to judging, public speaking is FFA's oldest and most popular contest. Finals are held at annual national convention.

Changes suggested most often by the 100 teachers included in this study are as follows:

1. Select animals on the basis of production data, performance tests, and market grades rather than "judge" animals on the basis of type.
2. Establish classes at fairs which are designed for the kind of livestock most farmers raise and get away from fair classes designed primarily for purebred breeders.
3. Stop rewarding students for picking out attractive samples of grain and begin to stress efficiency of production in crop production.
4. Visit farms of students to make final selections of production and improvement award winners rather than depending on paper entries alone.
5. Stop contests and award programs at the sectional level.

It should be noted that some of these changes have been made or are being made in sectional contests and award programs. This year teachers in each of the 25 sections in Illinois are devoting some time to an evaluation of sectional contests and award programs in order to increase the educational value of these activities.

Five hundred senior vocational agriculture students enrolled in the schools where the teachers cooperating in this study were employed were asked to record their four-year participation records in contests and award programs. Eight per cent of these seniors had never participated in any of the 30 activities during their four-year high school career. Another ten per cent had participated in only one of the 30 activities.

The activities participated in by the greatest number of high school seniors include activities where a team of three to five students may participate, such as judging contests. Another activity which draws a large number of participants is the sectional fair. Slightly over 1/3 of the seniors included in this survey had participated in a sectional fair or show during their high school careers.

Senior students rated State Farmer Degree programs, land use selection, livestock judging contests, and dairy cattle judging contests highest in educational value. They gave the lowest ratings to poultry judging contests, parliamentary procedure contests, and public speaking contests. In interpreting students' ratings of contests and award programs the reader should realize that students who had participated in a particular contest usually rated their contest higher than did students who had not participated.

Research Points Way

Much of the progress made in recent years in the improvement of animals can be attributed to selecting and breeding animals for rate of gain, carcass qualities, and other performance measures. Carcass and other economic traits are usually highly heritable so that rapid progress is possible by considering them in the selection process.

A recent study by Bayley and his associates shows that there is only a slight association (correlation of .08 to .19) between official type scores of dairy cattle and milk or fat production.[2]

"Thirty years ago the average hen in the United States laid 121 eggs per year; today she's laying 206 eggs. Our best flocks average 250 eggs or more per hen."[3] Much of this progress has resulted from improved selection and breeding programs which consider egg production, egg weights, hatchability, and other economic factors.

Many teachers agree that contests and award programs should be revised to reflect the important changes in farming practices. This study showed that most teachers favor getting away from identification of crop and weed seeds. Of course, the increased use of selective herbicides has reduced the importance of seed identification.

Another change which was suggested by a large number of teachers was to stop rewarding students for selecting attractive grain samples, seed by seed, and for exhibiting ear corn samples. The use of hybrid seed corn has made the selection of attractive ears of corn a rather fruitless activity.

A recent survey by Damisch of Illinois confirmed a finding of the writer's study; namely, Illinois sectional fairs

(Continued on page 20)

[2] N. D. Bayley, et al. "The Importance of Dairy Cattle Breeding and Management," Dairy Cattle Research Branch, United States Department of Agriculture, Washington, D. C., August, 1960.

[3] *Agricultural Research*, Vol. 9, No. 6, Agricultural Research Service, United States Department of Agriculture, December, 1960.

TRAINING ENGINEERING AIDES

DR. JOSEPH T. NERDEN, *Connecticut State Department of Education*

SURVEYS and manpower studies conducted in several sections of Connecticut, by the Connecticut State Department of Education, by the Connecticut State Labor Department, and by the Regional Manufacturers' Associations have indicated that the engineering aide is clearly a functional part of the productive team of the engineer, the engineering aide and the craftsman which is at work in Connecticut industry.

Further, the studies have indicated that the shortage of engineering aides is not lessening. Many of the major industries reported that jobs for engineering aides *just cannot* be filled because of the dire shortage of technically trained personnel. In many cases, reports indicated that engineers had been recruited to fill and perform the duties of the technician.

It does not place a very great strain on one's imagination to calculate the results in terms of our production of new ideas and new products, if we continue to draw upon the limited supply of engineers. There is no indication that engineers will soon be available in quantity; hence, to raid the pool of engineering intelligence and ability in Connecticut will react eventually to the disadvantage of the research and developmental impulse of our state, as well as wasting a level of intelligence and ability on job classifications which might well be filled by two-year engineering aides.

A further complication in the situation concerns the engineering colleges themselves. With the pressures upon them to place greater emphasis upon the theoretical, leaving the practical considerations to the technicians, the engineering colleges are now moving strongly in the direction of the preparation of scientists. Where the engineers will come from in the next decade is a moot point.

Needs Underestimated

Recently, the Connecticut State Department of Education joined with the manufacturing interests in the State in conducting a survey in depth to determine the actual number of vacancies in Connecticut industry for technicians of the engineering aide category. The survey revealed that 3,300 actual jobs of this classification found no takers and no potential applicants. Even with the release of the completed survey, it was evident that the number of vacancies by specific localities in Connecticut had been considerably underestimated.

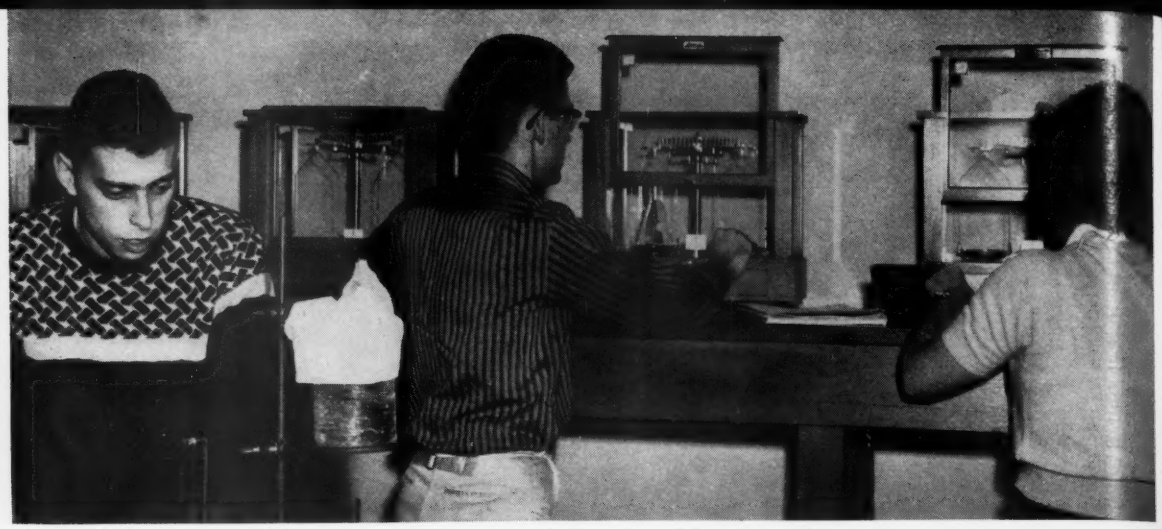
It is clear that the employment opportunities and actual job openings for engineering aides increases daily, while the supply, and source of supply, of engineering aides is agonizingly slow in meeting the need. This condition is critical for the country as a whole. To help alleviate this situation, the National Defense Education Act of 1958 provided several million dollars for 1960 and will unquestionably provide considerably more in the future to assist in the development of training programs for the design of curriculums, and for facilities needed to meet the technician needs of the nation, in the interest of the National Defense.

Here in Connecticut a few institutions are at work preparing technicians for our industries. In addition to the growing system of State Technical Institutes, training facilities are available at the Bridgeport Engineering Institute, New Haven College, Ward School at the University of Hartford, and a few others.

It takes time to plan for an Institute, time to process the required legislation, time for the architect to prepare the final drawings, and time to actually construct the buildings. Moreover, it still requires two years of intensive study by the enrollees before they are available as engineering aides for Connecticut industry.

Cognizant of the inherent delays in

Demands of the nation's industrial economy for engineering aides far exceed the supply of trained technical personnel. Connecticut's long-range program for dealing with this problem is described



Chemical balances are used for intricate experiments by both male and female enrollees in Connecticut's training program.

such a program, Connecticut some six years ago initiated a five-year Evening State Technical Institute Program, and housed nine of its Extension Centers in the State's operating Vocational-Technical schools, and at the present time more than 2,500 individuals are enrolled in the Evening Technical Institute program. Thus, within a brief period of six years an increasing number of employed individuals is being prepared for engineering aide jobs in Connecticut industry. The development of post-secondary Evening Technical Institute programs, I submit, is one of the several answers to meeting the twin problem of upgrading employed industrial personnel and producing technicians for our industrial needs.

I WOULD like now to discuss with you some of the considerations which imply limitations and possibilities of both the present and future programs of education designed to provide engineering aides for industry in the state of Connecticut.

Curriculum. Vital to any program of instruction is the emphasis that must constantly be given to curriculum. Curriculum is the keystone in a program of technical education. Hence, in the consideration of curriculums to be offered, the emphasis on technical know-how, rather than manipulative skills, makes it essential that individuals be trained for "job clusters." Engineering aides so prepared may find it profitable, strategic, and even convenient to shift from one job in a broad cluster to another within the same broad technical cluster.

Further, it is essential in order that these shifts within the cluster be facilitated that emphasis be placed upon basic mathematics and science concepts. Also, in the development of curriculums for *new technologies*, it is essential that appropriate representation on each specific curriculum committee include *not only engineers*, teachers and educational administrators, but also a selection of employed technicians, drawn from the very areas for which the instruction is to be oriented. There is a real danger when engineers exclusively develop curriculums for technicians.

Teacher Shortage. One of the apparent limitations today stems from the critical shortage of qualified teachers of technical subjects. A few colleges and universities have already recognized this critical need and are taking limited steps in the direction of collegiate preparation for technical teachers for our schools.

The preparatory teacher education programs for teachers of technical subjects is quite inadequate at the present time, as has been disclosed by the Technical Institiute Division of the American Society for Engineering Education. As a member of the Committee on Teacher Education and Recruitment, I can bear evidence to the fact that there is a virtual absence of preparation for teachers of technical subjects in the nation as a whole, and only very widely separated efforts are being made to meet the need.

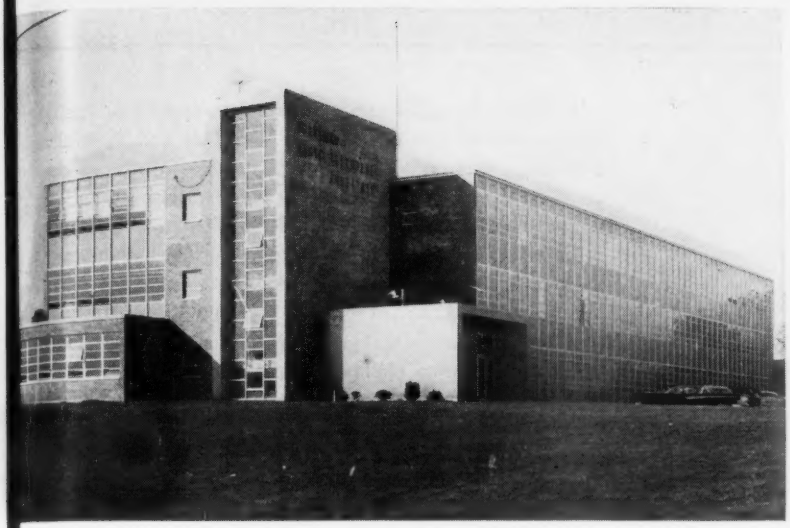
Since the major emphases in today's technical education are laboratory and classroom teaching-learning experiences, teacher education *must proceed from an entirely new set of conditions* from those of the teacher education program which has been identified with academic education in the past. Time does not permit the detailing of the elements of a program of teacher education commensurate with the needs of the individuals who will prepare our engineering aides for the future.

However, I would be remiss if I did not point out that the philosophy of engineering aide education is essential in such a preparatory program, as well as instruction in the art of effective classroom and laboratory demonstration, the use of closed circuit television for technical demonstrations, and the effective planning for group and individualized instruction. The lack of teachers with these knowledges will certainly limit the quality of the engineering aide of the future.

Womanpower. The critical shortage of engineering aides requires that every possible step be taken to gear both our manpower and womanpower into the field of industry. At the present time, womanpower has been used only occasionally in the field of technical skills.

Educators who are responsible for the operation and administration of post-secondary technical institutes must make a serious and determined effort to identify the factors that have a bearing on the adaptability of our womanpower to the technical fields, and to render acceptable for the technical fields of employment *both* male and female workers.

Numerous publications and state-



Hartford State Technical Institute, which opened in these new quarters in October of 1960, offers civil, electronic, mechanical and tool technologies. Future courses in nuclear technology are under consideration. The capacity of this Institute is 500 students.

ments by the United States Department of Labor have pointed out that unless steps are taken now to orient young people to the opportunities which are available in the technical fields, there will be an increasing shortage of individuals needed to staff the engineering aide responsibilities in the nation as a whole.

Program Evaluation. Another one of the limitations which I see in connection with engineering aide education is the virtual absence of agencies currently in the field to consistently evaluate and appraise operating programs. Good programs of engineering aide education will continue to serve the national and state industrial economies, but those programs whose value is questionable *must* be modified or even eliminated. Constant evaluation is essential, since no educational venture has ever been scrutinized as severely by congressional agencies, by educators, by industry, by the military and the geneeral public, as our efforts in the field of technical education. *This is the critical decade*, and carefully documented results of agencies in the field of technical education may well determine the future leadership of technical education in the United States. Elements which must be active in evaluating successes, strengths and weaknesses of the technician training program should be drawn from education, industry, engineering, labor and management. Industrial Advisory groups are especially useful in the evaluative process, since they are cognizant of the needs of industry, and are in a strategic position to appraise the competencies of employed engineering aides.

Collegiate Auspices. I would like to leave one final item for your consideration. This topic has been the subject of much discussion in the nation, and is one which may have to be decided here in Connecticut.

There is a lurking danger which exists, when the four-year collegiate institution takes on a program of less than four-year degree granting status, that the institution will regard such a program (in this case the Technical Institute), as a feeder for its four-year engineering school, or worse—as the receiver of the drop-outs and misfits from the four-year institution.

Whether by design or by chance, the Technical Institute under collegiate auspices may easily become the "Class B" program of the engineering school. It is my contention that the prepara-

(Continued on page 15)

Artist's rendering shows Norwalk State Technical Institute which was opened last September. The new Institute has a capacity of 700 students and it offers chemical, electronic, mechanical, electro-mechanical, metallurgical and tool technologies.

Vocational Education's NEW WORLD HORIZONS

Dr. Noel T. Myers, *a former Indiana school teacher and vocational training director, spent most of the 1950s overseas as an education adviser. Since 1960, he served as Chief, Far East Program Division, Office of Educational Services, ICA. He resigned from that position in late November to become Associate Staff Director of the "Panel of Consultants for Vocational Education."*

THE IMMEDIATE plight of youth in developing societies is of grave concern to the Western World as well as to the emerging governments whose ultimate destiny will be decided by their young people. The potential of 300 million now of elementary school and 200 million pre-school age children is either enthralling or appalling depending upon the development opportunities available to them.

Approximately 25 per cent of this multitude of school age youth are enrolled in some form of organized schooling. Of this school complement, not more than 30 per cent complete the sixth year of instruction. For the dropouts and for the vast majority of the youth, education is confined to home advice and admonitions and to the pressures of community environment and tribal customs. Coexistent with this social status is the lack of skills and concepts which engender the positive elements of economic transition and of enlightened government.

Any conception of educational opportunity beyond the 5th or 6th grade for 90 per cent of elementary school is unrealistic at this time. Of those fortunate enough to attend school nearly all will have to face occupational responsibility at the completion or partial completion of elementary school.

Thus, the role of elementary education for developing countries becomes increasingly multi-purpose and correspondingly complex. Its responsibilities include the teaching of the basic tools for learning. It must condition a number of people for continuation of preparation for higher professions and for leadership roles. Elementary education must preserve or change languages, develop and preserve ideas, interpret the motives, and help develop these factors into citizenship capabilities. Even with this gargantuan task, elementary education must also assume responsibility for any organized terminal vocational training that will be available to these young people.

In considering educational planning and implementation, the foreign education adviser for a developing country must take all of the aforementioned influences into consideration. Further, he must assist host country education leaders to comprehend and to define needs in terms of realistic situations and attainable accomplishment. In the forthcoming schemes of vocational education around the globe there must be revised and new thinking for the elementary education level.

Some American educators have believed that a transition of American Industrial Arts would be beneficial to developing societies. This thinking has an erroneous base. Industrial Arts, as conceived and practiced in the United States is an outgrowth of the development of a sophisticated industrial society. It is a structure of American general education and, as such, has been and is effective in meeting educational needs of the USA. However, this pattern of American education cannot effectively be transferred to societies in stages of development contrasting that of the USA.

There are American educators who believe that a simplification of techniques and methodology of American vocational education could be successfully applied to elementary school levels in developing countries. Others believe that vocational agriculture patterns inherent in 4H Club and Future Farmer programs can be successfully transplanted and would meet the needs of agrarian societies.

While some techniques can be adapted and some information used there exists no particular pattern of American education that can be successfully established in another country to meet the indigenous needs of its peoples. However, American educators are challenged to draw upon their experience and knowledge to understand foreign education needs and to help improvise programming to help meet these needs. American vocational education leaders, working with general education and industrial arts specialists, are thus confronted with the world challenge of need. In elementary education a program must be devised that will:

1. Be economically possible of achievement by each country affected.
2. Make use of every practical teaching technique to expedite the learning process.
3. Prepare youth, in addition to ordinarily expected outcomes, to assume occupational responsibilities.

Vocational education at the elementary level to be effective in developing countries must exist within a framework of individual country realism. For thousands of boys and girls, a subsistence level of existence on a family plot of ground formulates the scope of vocational possibility. To understand the limitations of environment and self, and to acquire skills accordingly, is a responsibility of elementary education.

During a transitional period of economic development the introduction of new tools and processes will change cultural patterns in both family and community life. The ensuing adjustment of vocational pursuits and acquisition of skills must be considered in elementary education planning.

For most countries attempting to balance, to some extent, agrarian occupations with industrial development there must emerge a new educational plan that will encompass the best elements of agriculture, industrial arts, general and trade education. Fallacious and superficial thinking in terms of the past and in direct relation to sophisticated present practice will be entirely out of place in this new educational plan.

Tried and proven practice will have its place as conditions warrant but not as preservation of misfit philosophy. New ideas and methods will be forthcoming. All will be modified and guided by scientific research conducted in the field for the job to be done. This is the vocational education task we face today for the insurance of tomorrow. ■

Engineering Aides

Continued from page 13

tion of technicians on the post-high school level has become a highly specific and well-defined process in education, enrolling carefully selected individuals, and educating them to a high level of intelligence and proficiency.

To accomplish this highly important task, the Technical Institute cannot accept the designation of "Class B" or "Second-Rate" but must continue to insist upon the specific designation of the Technical Institute as that kind of an educational opportunity which differs in philosophy and purpose from the four-year engineering college. The Technical Institute has already emerged as an entity of its own, *but will have to continually defend its philosophy and purposes, if it is long to retain its identity.*

Job Demands Action

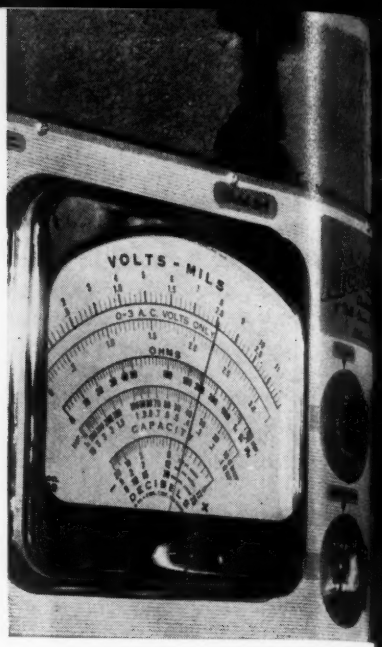
The job of technical education in this country is not a one-man or one-organization job. Cooperative action is needed desperately by all agencies meeting in council. This includes secondary schools, junior colleges, community colleges, vocational and technical facilities, as well as the ASME, the ASTME, the ASTD and professional organizations such as the Technical Institute Division of ASEE and the American Technical Education Association.

Technical education for the future demands creative ideas and dynamic leadership. Technical educators must continue to think positively, to act aggressively, keeping the target of "Service to Youth and the Nation" in the forefront. Our nation, the National Congress, industry, engineering and educational authorities are all enthusiastic about the possibilities of technical education in the interest of the industrial economy. The ideas and leadership displayed by individuals concerned with engineering aide education in the future will show whether the public trust so placed has been vindicated. ■

Dr. Norden is Chief of the Bureau of Technical Institutes, Connecticut State Department of Education. This report was presented originally at a meeting in Hartford of the American Society of Mechanical Engineers.

Five Project Activities f

THERE are—in addition to the constructed object—project activities which serve as the unique and primary vehicle through which subject matter in Industrial Arts may be taught. These, too, are projects in the broad sense. Five project activities are described here.



ASSEMBLY PROJECTS

Often overlooked is the assembly project, such as those in electricity and electronics. The advanced student would hardly be expected to build the vacuum tubes, resistors, transistors and the like that make up modern radio and television sets. Yet, to assemble either from a kit calls for constructive thought on the part of the student.

The uninitiated teacher, however, should beware of the kits on the market for building cedar chests and for lacing leather key cases. The kit for the cedar chest is little more than an exercise in fitting, glueing, sanding, and finishing, while the kit for a key case is not much more than an experience one might get by threading and tieing his shoe laces carefully two or three times a day.

TROUBLE SHOOTING AND REPAIR

Trouble shooting and repair may serve well as the vehicle for teaching auto mechanics. Instruction with respect to motors and electrical appliances may also be effectively taught through this type of activity. Such experiences should, however, be carefully devised and controlled.

The teacher could, for example, plan the "fault" in an automobile engine so that the pupil will be challenged at his own level and in a manner that will contribute to the objectives for the instruction. This is not to suggest wire-wiggling nor car-kicking which is simply blind trial-and-error in most cases.

Trouble shooting and the resultant repair and re-assembly should proceed in a logical step-by-step manner to have the highest educational value.

THE EXERCISE

The writer will probably be forever branded for this next claim but, claim it he will. The exercise may be the vehicle through which instruction takes place. Teachers need not blush for using exercises. The definition of "exercise," according to Webster, is "exertion for the sake of training or improvement, whether physical, intellectual, or moral; a set task for a pupil."

In teaching the elements of drafting to large groups, exercises are essential for efficiency. In other activity areas, as well as in drafting, exercises which include written reports on field trips, occupational information, and others will prove fruitful.

The construction of a joint in scrap wood before making it in final form for a useful project contributes toward the fulfillment of the educational goal. The exercise may serve well as the vehicle for the subject matter of industrial arts. It certainly may be planned so that it calls for an educational undertaking requiring thought from the pupil.

MASS PRODUCED PROJECTS

The mass produced project is getting more and more attention. Especially in the search for ways to interpret industry, we have found no substitute for an example of mass production. Team work and cooperation growing from the planning and executing of this type of activity are important educational experiences.

Field trips alone cannot do this. Most shop classes should have at least one experience in planning and mass producing some simple object. As a source of motivation there needs to be discussion before-hand regarding the time it may take to produce a given number of units.

Then when the products have been produced, there is need for evaluation. It will then be obvious that a number of concepts relative to industry and its problems will have come to the students—and perhaps the teacher, too.

The drawing teacher would do well to consider the group approach to design as an application to mass production. Design may be the project in any of the several

Four-tube receiver built from war surplus materials makes an excellent assembly project for instruction in electronics.

INDUSTRIAL ARTS

LAWRENCE S. WRIGHT *Associate Professor of Industrial Arts*
Iowa State Teachers College, Cedar Falls, Iowa

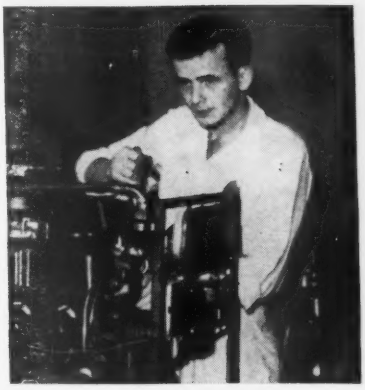
activity areas of industrial arts. In the graphic arts, for example, the copy for a design and page layout can be very thought provoking.

In woodworking, metalworking, plastics, and the like, a searching analysis of the functions that the constructed project should serve, followed by drawings of objects that deal with these functions, along with a stress on the intelligent use of tools, processes, materials, and aesthetics result in a real project in design.

DESIGN ACTIVITIES

Especially for the advanced pupil, designing can be one of the finest of educational adventures. Enriching the surface by adding unnecessary curls and swirls does not meet this requirement. Likewise, adding three inches to the height of a lamp design taken from a magazine is not re-designing.

The activities mentioned in this article serve as the vehicle through which the subject matter of industrial arts may be taught. They are as essential as the conventional construction of a project. They may be planned, have educational value, and require constructive thought on the part of the learner. They are unique and have special application for industrial arts. ■



Trouble shooting may be the project in auto-mechanics.

An exercise in welding may offer the most appropriate vehicle for some kinds of instruction in metalworking.

National Defense Education Act

Aids Business Education

R. C. VAN WAGENEN, *Chief, Bureau of Business Education, Sacramento, California*

This report describes the progress made in California in conducting projects in business data processing and business mathematics under provisions of the Act

THE National Defense Education Act of 1958, signed into Law 85-864 by President Eisenhower on Sept. 2 of 1958, authorizes more than one billion dollars in federal aid. In the swinging sweep of its ten titles, it touches every level of education, public and private, from the elementary school through the graduate level.

The purpose of the Act is that every young person from the day he first enters school should have an opportunity to develop his gifts to the fullest. This is the emphasis that gives the Act its name for it recognizes that in a free society the individual is the first line of defense.

The Act has ten titles. Titles III and VIII especially have strong implications for business education, and some states are securing financial support for their business projects related to education programs under these titles. California is one of these states, and herein is reported the highlights of its progress in conducting projects in business data processing under Title VIII and business mathematics under Title III.

DATA PROCESSING

The study of data processing systems and the training of technicians for operating such systems have become an essential part of business and technical education curriculums. During World War II, storage problems, increased volume of records, and the need for greater speed in the processing of data created demands that resulted in the mechanization of systems through the use of punched-card equipment. After the war, these demands became more imperative, and led to automation through the use of electronic computers.

Continuous technological changes during the latter 1950s have produced complicated business machines which are operated automatically. This has resulted in changing job patterns. Workers in routine clerical jobs have found their jobs eliminated, upgraded, or downgraded. New job titles such as programmer, coder, console operator, and the like, have been added to the *Dictionary of Occupational Titles*. Technological advances have produced the need for trained technicians whose primary responsibility is to devise ways and means of using the new equipment for processing business data.

Business educators are aware of the technological advances in business and are constantly appraising the impact of office automation on the business curriculum. One of the problems involved in this appraisal is just where to get a "hand hold" for the inquiry. The great technological changes taking place in business may revolutionize many of the business practices we have known in the past.

There is an apparent need for reducing production and operating costs both in business and industry to insure a stable operating profit. Fierce competition among business firms to preserve this operating profit will stimulate the development of new methods of processing business data together with the wide use of electronic data processing equipment.

It is a generally accepted fact that business may be lagging behind production in making the most effective use of automatic processes in our automation technology. Businessmen, therefore, have not communicated to the schools concerning their new demands for training in the next decade. And so it may be understandable that some business educators are waiting to get the message of the automation impact from businessmen before they move toward curriculum changes. Waiting for this impact may be disastrous for business education if the role of educational leadership is lost.

Experimentation Is Vital

The business curriculum must and will change. The movements toward revamping science, mathematics, and foreign language and other subject areas are making considerable progress. Business educators must resort to the laboratory to build the curriculum to meet the needs of modern business in strengthening our free enterprise system.

Charles Kettering of General Motors said, "An ounce of experimentation is worth a pound of theory." Research and experimentation are "blood brothers." Experimentation may validate the findings of research, and research may discover both the pattern and the need for experimentation.

The area of business data processing

lends itself to experimentation and basic research. The processing of business data in our age of technology is complicated and subject to a high degree of specialization. Business data processing technicians will take their place with the technicians in industry in the near future. How to train these technicians with the identification of the laboratory equipment needed is a problem which lends itself to experimentation and research made possible under Title VIII of the National Defense Education Act.

Title VIII provides for the training of highly skilled technicians. Recognizing the growing need for technicians to process business data for the government, defense industries, and business, the Bureau of Business Education of the California State Department of Education initiated inquiries to see if the adult high schools and the junior colleges of California could offer technician training in business data processing under the provisions of the National Defense Education Act.

During the first year, 1958, six cooperating schools offered such training. During 1959, 10 cooperating schools conducted studies or experimental programs in this field; and during 1960, there were 17 cooperating schools. California thus became one of the first states in the nation to offer an educational program in business data processing through the public secondary schools.

The California Bureau of Business Education, as well as local schools with a business data processing program, operates with an advisory committee. One of the criteria developed by the Bureau suggests the utilization of industry groups to keep abreast of training needs.

Valuable assistance is given by the advisory committee in suggesting courses and content, suggesting instructors, and promoting the business data processing programs. The Bureau's advisory committee has assisted on curriculum, equipment needs, student selection, industrial aids, and teacher training problems.

"Business Data Processing Curriculum Development," a mimeographed study by the California Bureau of Business Education, identifies levels of educational programs, lists technical courses and related courses, and sets guidelines for the acquisition of business data processing equipment. The technical courses listed in this study include introductory business data processing courses, programming electromechanical equipment, stored programming, systems and procedures, and mathematics of business data processing. Related courses include accounting, algebra, business management, and statistics.

Most schools have initiated the business data processing program through adult or extension classes. The teachers of these classes usually are actively engaged in business and teach on a part-time basis. Occasionally, a regular day instructor teaches these evening classes and, in addition, takes training from the manufacturers of data processing equipment at their education centers. Five junior colleges are now offering a two-year major in business data processing in regular classes. Students who complete this major are awarded the associate in arts degree.

BUSINESS MATHEMATICS

Recent research in mathematics is showing the need to revise many of the concepts involved in the theory of mathematics as well as the methodology of its teaching. Teachers with specialization in mathematics are taking the lead in this research as would be expected. Business teachers have a stake in this inquiry for they will be concerned with applying such new concepts of mathematics to business problems and the improved methodology of teaching this subject.

In answer to the question, "Who should teach the business mathematics subject, the mathematics or the business teacher?" It is generally agreed that the best teacher of business mathematics is one who understands both the mathematics concept and its application to the business problem.

If we are to improve business mathematics instruction in our schools, it will require close working relationships between the teachers of business subjects and the instructors of mathematics. Business and mathematics teachers should jointly experiment with new concepts of mathematics as applied to business problems. Such experiment and research are made possible under the Act.

Federal Funds Used

In the spring of 1960, the California Bureau of Business Education qualified under provisions of Title III of the National Defense Education Act to conduct a project for the improvement of mathematics instruction as it relates to business courses offered by California public secondary schools.

This business mathematics project included the conducting of a planning conference and the employing of a special consultant to study the business mathematics programs of selected California public schools.

A second step in the development of the project was to conduct a business mathematics planning conference of business and mathematics teachers. The conference discussed and planned the activities to be undertaken as part of the business mathematics project.

The planning conference members were organized into four discussion groups which represented the junior high schools, high schools, junior colleges, and teacher training institutions. Each group discussed the improvement of mathematics instruction as it relates to business courses in the secondary schools. Some general recommendations follow:

1. There should be more interchange

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Enrollment Zooms

	1958-59	1959-60	1960-61
Enrollments	2,075	6,308	7,300
Number of Classes	57	119	202

The business data processing program in California's public junior colleges and adult schools enrolled 7,300 in technician training classes in 1960-61. The above figures indicate the growth of the program since its beginning.

of mathematics and business ideas and vocabularies by mathematics teachers and business education teachers.

2. An in-service education program should be organized for business education and mathematics teachers, including a demonstration summer school class where a proposed mathematics resource guide would be tried out.

3. A study should be conducted to determine the mathematical needs of business, particularly in data processing; and to determine whether there are any other mathematics skills needed beyond those covered in the comprehensive arithmetic course.

4. Better communication should be maintained and developed between the mathematics and business departments.

5. The resources and materials already available in business education that would enrich the business mathematics instructional program should be identified.

The proceedings of the meetings of the conference group were compiled along with the findings of the special consultant in a publication entitled, *A Report of a Project in Application of Mathematics to Business in Secondary Schools.*

A second publication was prepared entitled, *Application of Mathematics to Business in Secondary Schools.* These publications were designed to identify the following:

1. Areas of mathematics which have implications for business education at the various levels of secondary education.

2. Economics or business practices which have mathematics applications.

Three workshops for business and mathematics teachers were conducted at Sacramento State College, San Francisco State College, and U. C. L. A. during the past summer. A summary of the recommendations of these workshops will be published in late December.

One of the fine outcomes of these workshops has been the excellent response of both mathematics and business teachers in their joint interest in building a strong business mathematics curriculum. ■

Farm Contests

Continued from page 10

are getting away from the practice of providing premium money for single ear, three-ear, and ten-ear samples. Damisch's survey showed that only six of the 25 sections in the state still have ear corn classes.[4] Sixteen of the 25 Illinois sections had shelled corn classes. The survey also showed that most teachers are anxious to develop a recognition program which covers the entire corn enterprise. A recent innovation in sectional grain shows in Illinois includes an evaluation of approved practices and an on-farm inspection of the corn enterprises of students.

Another change in farm practice which should be recognized in revamping contests and award programs is the change taking place in certain areas in type of farming conducted. An example would be the concentration of dairy cows in specialized dairy areas of the state. Forty-two per cent of the senior students surveyed had participated in one or more dairy cattle judging contests.

This is a high percentage when compared to the percentages participating in other contests which include experiences with swine, beef cattle, soil, and crops. Perhaps one of the first steps a sectional group should take in revising their contests and award programs is to survey the area represented and find out what enterprises are important and the farm practices which are currently being followed.

The suggestions made thus far for modernizing contests have to do with changing the content or nature of these activities so that they reflect the recent findings of research. But even a good contest can be misused. One of the real issues in vocational education in agriculture is how far should teachers go in substituting external or artificial methods of motivation for internal or natural motivation. There is no question but what contests and awards promote interest in learning, but are these activities the best or only way to motivate students to learn?

Some Contests Questioned

This study showed that the attitudes and opinions of teachers regarding contests and awards ranged all the way from a strong, negative feeling to a strong, supportive attitude. In some instances contests have become ends in themselves rather than teaching devices. In some schools the content of vocational agriculture courses and the arrangement of this content has been unduly influenced by contests and award programs.

Competitive activities which run from the local to the national level are difficult to change. For example, sectional public speaking contests in Illinois resemble closely the National Public Speaking Contest. One argument for stopping contests at the sectional level is that teachers would be in a better position to develop the sectional contest as they see fit.

Too many teachers and too many departments have been evaluated solely on their contest participation and winnings. Board of education members, advisory council members and others need to be reminded that sound evaluation of educational activities must be carried out in terms of established educational objectives rather than in terms of ways and means.

As mentioned earlier, Illinois teachers of agriculture are making some decided improvements in sectional contests and award programs. The writer has observed that important changes in judging contests have also been made in other states. Much remains to be done. A better exchange of ideas and new practices needs to be made among states and among sections of a state.

At the local level written policies need to be developed regarding the place of contests and award programs in the total vocational agriculture program. Institutions of higher learning where agriculture teachers are prepared need to help students develop a tenable position regarding contests and awards. A certain amount of competition enhances learning, particularly of motor skills, but a highly competitive atmosphere thwarts creative activity. More cooperative programs need to be used in education, and more attention should be paid to situations where students are encouraged to compete with themselves.

There is much to be done if we are to modernize contests and award programs to bring them in line with recent research findings in the fields of agriculture and education. Increased effort is needed at the local, sectional, state, and national levels. ■

[4] H. R. Damisch, "Exhibition of Corn at Vocational Agricultural Fairs," a communique to Illinois teachers regarding the results of a survey taken in 1961.

The Evolving MID MANAGEMENT PROGRAM *in Distributive Education*

B. A. YORMARK

The author discusses research studies conducted in Washington State and describes the framework of a post-secondary Distributive Education program developed by the State Office as an administrative planning tool. A doctoral candidate at the University of Washington, the author formerly was Distributive Education coordinator at Foster, Wash.

SINCE 1958 the post-secondary Distributive Education Program of Mid-Management has seen a conceptual growth in the State of Washington. Through the monies provided by the reappropriation of George-Barden funds, research has been undertaken to conduct state-wide surveys of business and educational needs, as well as evaluations and re-evaluations of definitions, program aims and curriculum.

BACKGROUND OF STUDIES

For a number of years now, junior colleges and vocational schoools, have been experimenting with various types of training, some of which have been in conflict with either the high school course or courses offered for credit in institutions of higher learning. In order to give constructive advice to school officials, Antonio Francis Scarpelli, Jr., Distributive Education Program Coordinator at Clark College in Vancouver, Wash., was granted a three-months leave of absence in 1957 to make the study for the State Office.

In order to determine how to approach the problem, Mr. Scarpelli gathered all available literature possible, experimented by trial and error on questionnaires, worked closely with the two local distributive educational coordinators in Vancouver, met with advisory committees and talked with numerous businessmen. With the framework of a plan in mind, he then visited vocational directors, junior college deans, superintendents of schools, high school coordinators and supervisors.

His final report was titled "A Descriptive Study of the Need for Developing Terminal Distributive Education Programs Beyond the High School Level in Selected Areas of the State of Washington." The three guiding objectives that Mr. Scarpelli suggested were:

(1) To develop in students the fundamental skills, knowledge, and attitudes to enable them to successfully assume or progress in positions of responsibility as junior executives or small business owners or managers;

(2) To provide more incentives for students to enter or remain in the distribution field by offering a comprehensive training program which will lead to greater job satisfaction, increased earning power, advancement on the job and a feeling of permanency of employment in a worthwhile career;

(3) To contribute to the general improvement and efficiency of marketing and merchandising in the field of distribution and thereby reduce business losses and failures.

This year (1961) a follow-up study was conducted by this author (Ben Yormark) to test the premises of the first work in light of current educational and business practices. Again, the study was made possible by reallocated monies from Federal legislation as well as State funds. The significance of the second study reflects the conceptual changes that have occurred in the post-secondary level even in the span of a few short years.

IMPLICATION OF CHANGE

This change in the interpretation of the post-secondary Distributive Education picture may be viewed in many areas. From a conceptual standpoint the Mid-Management program is viewed as a continuum form of education. This departs radically from the "terminal" concept of just a few short years ago.

As John Beaumont stated in a recent article *(AV Journal, Sept. 1961)*, "The only terminal aspect of this program is the student himself." Our rapidly moving technological age demands a philosophy of continuous education for the instructor as well as the student. This idea will be further exemplified in the suggested model program which will be discussed later.

A further change deals with the necessity of emphasizing conceptual as well as practical understanding as a teaching objective. This is especially true in the teaching of management. The art or science of management is still in a formative stage. Basic conflicts still exist as to value and approaches to the teaching of management development. Distributive Education teachers are in a position to make a valuable contribution, in what

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still can be considered as a pioneering effort, in the field of effective management training.

DEFINITION AND OBJECTIVES

In light of the role that education plays in this fast-moving technological age, the State Office in Washington State has developed an administrative planning tool which has been titled "A Professional Framework for the Interpreting of the Distributive Education Program of Mid-Management in the State of Washington." The purpose of this framework was to identify as realistically as possible a definition of the post-secondary Distributive Education program, taking into consideration its breadth; and forecasting into a five- to ten-year future the expected evolvement of the program.

The definition and objectives should better reveal the administrative planning that has taken place.

Definition:

MID-MANAGEMENT—An area of vocational study concerned with specific, as well as comprehensive training in the field of distribution. The classroom instruction is combined with on-the-job training in an approved distributive occupation. The program is offered on the post-secondary school level and could include several fields of concentration, such as: (1) junior executive development, (2) merchandising, and (3) technical occupational knowledge.

Over-All Objectives:

1. To interpret the basic concepts and functions of distribution.
2. To study the economic problems of modern business.
3. To provide the student with a progressive laboratory experience in cooperation with the employer.
4. To encourage continuous education for all levels of distribution to meet the needs of the accelerating tempo of scientific and technological change.

Junior-Executive Development Objective:

1. To develop supervisory and managerial concepts so essential to success in business today.

Merchandising Objective:

1. To prepare students for careers in merchandising.

Technical Occupational Knowledge Objectives:

1. To upgrade the present working force in distribution in the areas of current technical information and the functions of management.
2. To introduce technical information to beginning workers.

If the above definition and objectives display a breadth and diversity, then they have succeeded in their connotation. A definition was needed that would consider the business needs of a variety of geographic areas. This breadth of purpose is further substantiated in considering the heterogeneous student body that is served at the post-secondary level. The fields of concentration considered in the definition describe the variances of approaches to mid-management.

The junior-executive program is the broadest of the three and concerns itself with developing practical concepts in getting work done through other people. In the merchandising program, the attention is concentrated on the buying and selling functions of marketing. The third program of technical occupational knowledge gains its strength from age and business maturity factor of the post-secondary teaching level. Further expertness in a chosen occupation requires specialized product and service information if a student is interested in upgrading his position. This breadth is further seen in considering the growing importance of distribution in our economy and the resulting challenge to occupational education.

MODEL PROGRAM

The true revelation of a program should be a study of what is taught. Course titles and catalog descriptions, in themselves, can be deceptive. It is expedient to borrow course titles that are recognizable by the general public. The key to making these titles describe a practical relevant unity balances on a delicate philosophy that is often referred to as "vocational thinking." The State level administrative guidance and leadership in working with occupationally-oriented teachers through conferences and workshops does develop a point of view that can be viewed as the growing strength of the program.

The model program consists of several areas such as the core program, possible functional courses, suggested background courses, and possible future courses for the program.

The core program should include as a minimum a basic management course, and an organized class which will give some specific identity to the on-the-job training.

The *Principles of Management* could cover functions, philosophy, and concepts of management as well as managerial decision-making, and problems of organizational structure. A behavioristic approach rather than a rationalistic approach toward the development of management talent appears to be the better practical progression. The study of leadership and executive behavior should be considered in light of what the student observes and practices in his cooperative training.

The *Principles of Marketing* could cover marketing functions and institutions, buying policies and practices, government regulations, etc. The course should be taught in the light of being an introductory analysis of the entire distributive process. The program coordinator should take into consideration that the students will be delving further into the functions and channels of distribution through their work in retailing, salesmanship, advertising, etc., and should consider the broad marketing foundation as a complement to further study in the classroom and on the job.

The number and form of functional courses that should be used will depend on the needs of the business community. Some titles that could be considered are: Retailing, Salesmanship, Advertising, Credit Management, Wholesaling, Sales Management, Personnel Management, Traffic Management, Purchasing, etc.

These functional courses reflect the hard core of the post-secondary mid-management program philosophy. It is in these areas that most program coordinators have had their occupational experience. It is in these areas that the more age-mature student is able to successfully carry out job responsibilities. It is in these areas that greater changes in procedures and practices occur. They can be studied, evaluated, and put to functional use while they are in current practice.

The final phase of the core program deals with the advisability of having the entire mid-management student body meeting as a group for the pur-

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CRITERIA
OF TEACHER EFFECTIVENESS

DR. MARGUERITE SCRUGGS, *Head, Home Economics Education Dept., Iowa State University of Science and Technology*

Here are some considerations for judging the effectiveness of teachers in home economics

IF EXPERIENCE develops experts, there is probably no topic on which there are more experts than that of judging the effectiveness of teachers. Many parents, pupils, educators and others have made countless numbers of such judgments. Unfortunately, however, experience in judging and the ability to make adequate judgments do not necessarily go hand in hand. Too frequently fuzzy and inadequate criteria are used in judging one of our most important human assets, effective teachers.

Through the efforts of a number of research workers throughout the country, our body of knowledge about teacher effectiveness is growing. In home economics education several studies related to criteria for determining the effectiveness of homemaking teachers have been reported and others are continuing to explore the problem. Some considerations in determining criteria of teacher effectiveness that are being utilized in current research have implications for those who are not actively involved in research but are busily engaged in efforts to improve teaching. A few of these considerations are highlighted here as "food for thought" in clarifying bases for judging effectiveness of teachers.

What Is Teacher Effectiveness? What is the meaning of teacher effectiveness? If you are asked to recommend a teacher and you say that she is a good teacher, an effective teacher, what do you mean? Teacher effectiveness can be defined as the degree to which the teacher produces those effects toward which the teaching is or should be directed, the extent to which the teacher causes the attainment of educational objectives by students. In other words, effectiveness of teachers refers to the effects or results produced by the teachers.

The Criteria Committee of the American Educational Research Association[1] set up three categories of effects of teachers; that is, effects on pupils, on school operations, and on the school-community relationship. A rather extensive review of research in this field revealed no studies related to the last two categories of effect although possibly some have been conducted.

The first category has been included in a number of studies and seems of prime importance because the major purpose of teaching is learning on the part of the student. Perhaps the last two categories are important to the extent that they relate to the first. Further consideration in this article is limited to teacher effectiveness as defined in terms of effects on pupils.

Criteria Are Based on Objectives. Since criteria are standards which may be used in judging the worth or value of something, value judgments are involved in their selection. Criteria of teacher effectiveness originate from judgments regarding what the objectives of education should be and what constitutes satisfactory attainment of these objectives.

Criteria are actually determined as a part of curriculum planning when objectives are selected and defined in terms of behaviors and content, and their adequacy and validity depend upon those same qualities in the curriculum planning. Although such judgments cannot be validated empirically, they need to be based upon theory which can be supported empirically as well as rationally.

Such a concept of criteria presents a number of challenges related to curriculum development as well as the judging of teacher effectiveness. Has ample consideration been given to the rationale which supports the choice and definition of educational objectives? Have objectives been defined in terms of content and observable be-

[1] Arvil S. Barr, Burley V. Bechdolt, Warren W. Coxe, N. L. Gage, Jacob S. Orleans, H. H. Remmers, and David G. Ryans. Report of the Committee on the Criteria of Teacher Effectiveness. *Review of Educational Research.* 22:238-263. 1952.

What is Meaning of Teacher Effectiveness?

"Teacher effectiveness can be defined as the degree to which the teacher produces those effects toward which the teaching is or should be directed . . . the extent to which the teacher causes the attainment of educational objectives by students. In other words, effectiveness of teachers refers to the effects or results produced by the teachers."

haviors? Have we utilized the results of related research in our curriculum planning?

In what ways can we in home economics education increase the quantity and quality of our research that could provide information useful in making the necessary value judgments? To what extent has there been a deliberate, clear-cut relationship between educational objectives and the criteria we use for judging teacher effectiveness?

Criteria Are Complex. There is considerable agreement that criteria for effective teaching are complex and multi-dimensional in nature. There is ample evidence to question the wisdom of searching for any one set of components that would characterize the effective teacher. Rather, effectiveness involves such questions as effectiveness for what purpose? With which pupils? In what subject matter fields? And at what levels?

It might be more accurate to discuss teacher effectivenesses rather than teacher effectiveness. For example, a teacher may not be equally effective in helping students to attain intellectual and attitudinal objectives, in working with pupils of differing abilities or backgrounds, or in teaching in different areas of home economics. Even so, the tendency still seems to exist to judge teachers on the basis of one set of criterion components for all situations.

It is rather common for recommendations to include a statement to the effect that the person is an effective teacher. Such a blanket statement without further specifications seems to assume that a quality of effectiveness tends to be ever or never present. Descriptions of the areas of effectiveness of the teacher could be more helpful to employers as well as supervisors working with the teacher toward improved instruction.

Because of limited opportunities for gathering information about the effectiveness of teachers, it is undoubtedly tempting for us to generalize regarding effectiveness on the basis of very few observations. How much would be known about the effectiveness of a teacher after observing her teach one or two classes? Sufficiently large differences in measures of teacher effectiveness have been found between classes of the same size and level taught by the same teacher to suggest caution in making judgments.

Worth of Criteria Depends Upon Relationship to Ultimate Objectives. Criteria have been classified in a variety of ways. Only a few examples of types of criteria will be discussed here. Since numerous criteria for judging effectiveness could be considered, it is necessary to have some basis for comparing their possible worth. One basis for comparing criteria is in terms of their closeness to the ultimate objectives of the teacher.

Measure of Pupil Gain. One type of criterion that is very close to such objectives is the gain that is made by pupils in the attainment of educational objectives being stressed by the teacher. Measures of pupil growth from the beginning to the end of a course or unit in relation to such an educational objective as ability to apply generalizations in solving problems related to various areas of homemaking have been used with some success.

One caution to be remembered is that the same tests for determining pupil progress are appropriate for different classes and teachers only if the teaching is aimed at the same objectives included in the test.

Observation of Behavior. Two other criterion measures are the observation of the behaviors of teachers and pupils in the classroom. These criteria are less closely related to the objectives of the teacher but can be justified as criteria of effectiveness to the extent that they have an effect upon the learning of the pupils.

Although useful, any judgment of the effectiveness of a teacher based upon observed behaviors in the classroom needs to be recognized as limited and incomplete in terms of such factors as the types of educational objectives involved, the particular groups of pupils, and the frequency with which the behavior occurs.

Some findings related to behaviors of pupils and teachers in the classroom may be of special interest to supervisors. Several studies indicate that it is important to observe the behaviors of both pupils and teachers in the classroom in gathering criterion data on teacher effectiveness. Although behavior of pupils can be viewed as an effect of the teacher, it is probably more accurate to think of the behaviors of each affecting the other. The interaction between teacher and pupils can be expected to have a relationship to learning on the part of the pupils.

The observation of behaviors of pupils as well as teachers may be a potential means of obtaining information that supervisors are not utilizing as extensively as possible. This criterion measure does not refer to the observation of just any behavior that happens to occur.

As is true of any criterion measure, the dimensions of the criterion need to be thoughtfully defined in operational terms. For example, one study of home economics teachers adapted behavior dimensions used in the Teacher Characteristics Study of the American Council on Education.[2] One dimension of behaviors of pupils was entitled "apathetic-alert." Apathetic was defined as listless, bored acting, entered into activities half-heartedly, restless, attention wandered, and slow in getting underway.

Evidences of alert behavior were also identified. One of the dimensions

[2] David G. Ryans. "Characteristics of Teachers." Washington, D. C. American Council on Education. 1960.

Sources for Additional Information

There are many articles and research reports available on criteria of teacher effectiveness. Two, in addition to those in the footnotes, are:

Arvil S. Barr, Burley V. Bechdolt, N. L. Gage, Jacob S. Orleans, Robert C. Pace, H. H. Remmers, and David G. Ryans. Second report of the Committee on Criteria of Teacher Effectiveness. *Journal of Educational Research.* 46: 641-658. 1953.

Harold E. Mitzel. "Teacher Effectiveness." In Harris, Chester W., editor, *Encyclopedia of Educational Research.* New York, The Macmillan Co. 1960.

of behaviors of teachers was entitled "dull-interesting." Interesting was defined as got and held attention without being flashy, learning experiences challenging, provided change of pace, took advantage of pupil interests, and brought lesson successfully to a climax.

General Impressions Are Not Enough. In the past much research related to effectiveness of teachers utilized as criteria such qualities as personality characteristics and traits of teachers, intelligence, and knowledge of subject matter. In a hierarchy of possible criteria of effectiveness arranged according to their closeness to ultimate objectives of the teaching, such criteria rank quite low and are far removed from ultimate objectives.

Only to the extent that such generalized characteristics and traits are related to learning by pupils can they be considered as criteria at all. This presents a challenge to those making decisions regarding effectiveness as to whether such decisions are made on the basis of generalized impressions of characteristics of teachers or upon criteria more directly related to the effect of the teacher upon the pupil's learning.

Improving Judgments of Teacher Effectiveness. In summary, it is suggested that although we have much to learn concerning bases for judging effectiveness of teachers, there are a number of ways in which we can improve these judgments.

We can clarify what we mean when we talk about teacher effectiveness. We need to place first things first and to emphasize the effects of the teacher on pupils. We need to recognize that criteria are based upon value judgments and attempt to utilize all of our valuable resources in making these judgments as valid as possible. We need to recognize that effectiveness of teaching is complex and has many dimensions.

The judgments that we make concerning effectivenesses can be expected to be more useful to us in improving instruction if we are conscious of the criteria that are being used and recognize their limitations in relation to the totality of teacher effectiveness. Research reports of progress being made in refining techniques of observing behaviors of pupils and teachers in the classrom could be especially useful to supervisors. ■

Books

Your Future in Retailing

By George A. Scott, Richards Rosen Press, Inc., 1961, 160 pages, $2.95.

The author, a retailing Horatio Alger in his own right, provides in this volume a basic textbook for high school and distributive education students. He swiftly describes the expanding retailing industry, its functions and methods of operation; specific career opportunities in the department speciality store and chain store fields, and typical remuneration in a variety of key jobs.

The book also gives a lucid account of how a young person can evaluate his own potential for a retailing career, and how to go about getting a start in the business. The author is president of Walker Scott Co., San Diego.

Essentials of Radio-Electronics

Morris Slurzberg and William Osterheld, McGraw-Hill Book Co., 1961, 716 pp., $7.25.

This second edition of an outstanding introductory text is intended for technicians and technical-institute level courses. Requiring a minimum knowledge of mathematics, the material provides the background necessary for study in fields such as high frequency and ultra-high frequency circuit applications.

Many illustrative examples, including drawings, diagrams, and photographs, amplify the principles of high-fidelity sound reproducing systems, corrective networks, and stereophonic systems. Ten appendixes provide general reference data.

Instructional Aids in Industrial Education

By Walter E. Burdette, Industrial Education Div., Arizona State University, Tempe, Ariz., 1961, 128 pp., plus approx. 15 pp. sources, $2.50, postage paid.

Compiled by the author, with the assistance of the members of his Instructional Aids classes, this comprehensive source book presents, in tabular form, a complete bibliography of visual aids available from both commercial and private industries.

Columnar headings include: Time, Rental, Purchase, Free (for films); Description, and Level (suitable audience). Classifications are shown in alphabetical sequence, and imaginative line drawings on divider sheets facilitate group breakdowns. The 15 pages of "sources" list complete names and addresses for procurement.

This excellent publication, produced through offset lithography in the Graphic Arts and Printing Department of the University, reflects the care and exhaustive research which, over a period of two years, has contributed to a time saver for all who use industrial aids.

Farming Programs for Students In Vocational Agriculture

By Dr. Carsie Hammonds and Dr. Harold R. Binkley, Interstate Printers & Publishers, Inc., 1961, 314 pp., $4.50.

Instruction in vocational agriculture is becoming *more important,* not less. Farming programs are a vital part of vocational agriculture—they are here presented not as a requirement but as an opportunity for students and teachers, too, to get the most benefit from them.

Dr. Carsie Hammonds is Head, Department of Agricultural Education, University of Kentucky, while Dr. Harold R. Binkley is Associate Professor of Agricultural Education at the same university. Both authors are actively engaged in training teachers of agriculture.

Written in simple language, the philosophy and much of the information presented are applicable to the farming programs of adult farmers, as well as to programs of boys and young men. Material supplied may be read and discussed in class; it may also be used by the individual student.

Jill and Joy Learn to Swim

By Margaret Winstead Stilwell, Exposition Press, Inc., 1961, 31 pp., $2.50.

Parents will enjoy reading this narrative to their small children, and older children will enjoy reading this delightfully written and illustrated story to themselves as a prologue to swimming lessons. The principal character knows well how to make children and water good friends fast. Of interest to all involved in recreation guidance.

Closed Circuit TV Tested as New Educational Media for Management Development Porgram

The first Management Development Institute via closed circuit television was held at Hagerstown, Md. George Sanders, Distributive Education Branch, U. S. Office of Education, and Willard Jensen, Marketing Specialist, Small Business Administration, stimulated the initial interest in the innovation in this use of the new educational media for a Management Development Program.

The program, Management Development Institute, was planned by a local advisory committee of businessmen and educators, with the assistance of consultants from the Maryland State Department of Education, the Distributive Education Branch of USOE, and SBA.

Hagerstown is one of the Nation's redevelopment areas, badly hit a few years ago by the near shut-down of a major industry. The seminar for businessmen is designed to stimulate the creation of new jobs and business opportunities through training of business managers and owners in new approaches to organizing, financing, sales and selection of personnel.

Businesses which have fewer than 100 employes make up more than 95 per cent of the total business enterprises in the United States. The rate of failure of small businesses during the first five years of operation is nearly 60 per cent. About 38 per cent of small business owners have not completed high school. It is the view of specialists in the field of distributive education that management training for the businessman can be of significant help in getting his venture safely through the high mortality period.

The Management Development Institute in Hagerstown uses the school buildings, with their closed-circuit television sets, as lecture halls, and has drawn an enrollment of more than 260 from the community and its environs.

The programs, eight in number, consist of a 55-minute presentation by a prominent specialist in each topic area. The presentation was followed by a discussion period in each of the seven viewing centers in the country. The discussion groups called in questions to the TV station.

The topics presented include the role of management in small business, functions of management, accounting, human relations in business and management, sales promotion and advertising, economic conditions as they affect small business, and sources of assistance (financial, legal, insurance, trade associations, Government).

Teamwork Approach Helps New England States Strengthen Their Vocational Education Programs

An interesting application of the teamwork approach in strengthening vocational education occurred recently. The combined vocational staffs of the State Departments of Education from Vermont, New Hampshire, and Maine met in Concord, N. H., for a two-day conference to discuss problems of common concern to the North New England States. It has long been felt that because of social, economic, and philosophical similarities a cooperative approach would result in optimum use of talents and facilities of the several states in improving the vocational education program of the area as a whole.

The conference opened with a general session during which the state directors outlined their programs broadly indicating accomplishments of the past, problems at present, and plans and goals for the future. The conferees then attended planning sessions for each vocational education field and prepared an agenda for sectional meetings the following day.

Major attention was directed toward problems resulting from such factors as: the high ratio of very small high schools to those sufficiently large to support a program, the reluctance of the smaller communities to participate in joint programs, and the inclination of legislators to favor post-secondary programs at the expense of those designed for high schools.

Dr. Margaret Alexander of the Home Economics Education Branch, and Dr. Theodore J. Cote of the Trade and Industrial Education Branch, U.S. Office of Education, served as consultants to the conference. At the closing session, it was the unanimous feeling of the group that such conferences should be held periodically.

NEWS ROUNDUP

FHA Delegates Draft National Work Program

Eighteen youth officers, accompanied by their local advisers, participated recently in the National Executive Council Meetings of Future Homemakers of America and New Homemakers of America at the Office of Education, Washington, D. C.

The meetings were conducted under the direction of the national headquarters staff with the leadership responsibilities shared by Lois Oliver, Mildred Reel, and Ruthanna Russel.

The major task for this group was the development of their National Program of Work for the next three years —1962-1965. As a basis for planning pertinent, timely objectives and projects, prior to the meeting, each officer worked in her own state to gather data on "Concerns of Youth Today."

In addition, the FHA Vice President of National Projects worked with ten members of the national projects committee to seek information. Altogether, youth from 34 States expressed their views, and the findings were grouped into five top concerns. They are:

1. Education and vocations.
2. Early marriages.
3. Family relations.
4. Social acceptance and personal development.
5. Youth's role in society and world understanding.

In addition to the information gathered from youth throughout the country, three consultants from other professional organizations presented background information to help the council members plan their program of work. These persons discussed the topics: "Needs of Today's Teenagers," "The Role of Organizations in Our Society," and "The Role of Organizations in Our Schools."

A new program of work for 1962-65 evolved which will be presented to the delegates for adoption this summer.

FFA's Coveted Award Presented at Convention

More than 10,000 persons registered for the 34th Annual National Convention of Future Farmers of America held in October at Kansas City, Mo.

New national officers elected by the delegates include Victor Butler, Havana, Fla., president; Richard Black.

Prairie Grove, Ark., student secretary, and the four vice presidents, Randall McCutcheon of Reedy, W. Va.; James Prewitt, Kirbyville, Texas; Darryl Eastvold, Mayville, N. D., and Keith N. Simmons, Enterprise, Ore.

The organization's coveted "Star Farmer of America" title, carrying a cash award of $1,000, went to 20-year-old James Isaac Messler of Greenback, Tenn.

Travel Fellowships Offered For Hotel Training Program

Vocational training and education for hotel and restaurant workers will be the theme of the meeting of the National Council on Hotel, Restaurant and Institutional Education, Dec. 28-30, in East Lansing, Mich.

The planning of classes, teaching methods, demonstration techniques, and the use of visual aids will be discussed and explained.

Every effort will be made to bring to the meeting all those who are working in hotel and restaurant training programs at the vocational and high school levels. To assist those persons who might not otherwise be able to attend the council has arranged a number of travel fellowships. Full information may be obtained by writing Dr. H. B. Meek, executive director of the council, 1336 Wyatt Bldg., Washington 5, D. C.

Seaboard Honors FFA Winners

Six young farm boys from the Southeastern States, members of the Future Farmers of America, who were selected for their accomplishments in forestry in a cooperative program sponsored by the Seaboard Air Line Railroad Co., were the principal speakers at a special luncheon given recently by the Seaboard Railroad in their honor in Philadelphia, and at the regular luncheon program of the Rotary Club of Baltimore in Baltimore. The boys were accompanied by Robert N. Hoskins, general forestry agent, who heads the Seaboard's forestry program.

Roney Addresses Schoolmen

Maurice W. Roney, Program Specialist, Area Vocational Education Branch, addressed a meeting on "Public Technical Education" held at the University of Pennsylvania. The meeting was held as part of 49th Annual Schoolman's Week Conference.

Distributive Education

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pose of strengthening their identity with a specific program and also to carry on work that would be of common interest. This organized class could be a prerequisite for those that are receiving school recognition for their employment. The course could give time to the discussion of employment problems, club program, personality development, job-finding techniques, group counseling, and seminar type discussions of current business practices.

The background courses again depend on community need and educational facilities available. Typical courses that should be considered are Introduction to Business, Economics, Accounting, Business Communication, Business Law, etc.

A look into the future of a course that should be considered in the total concept approach to Distributive Education should be titled, Contemporary Business Research. This course would be aimed at the graduates of the Mid-Management program. If this course was offered in the near future it might consider some problems or areas such as systems management, motivational research, rhochrematics, automatic selling, techniques of forecasting, international trade, impact of population growth, etc.

This is a course that is still on the figurative planning board. Its reasons for consideration are twofold. First, we live in a rapidly-changing world. Today's expertness could well be tomorrow's stumbling block to progress. A true belief in a practical, usable, workable philosophy toward economic success demands an individual's devotion toward considering the business innovations of the day.

Secondly, and tied rather closely to the first point, one of the basic program objectives was "to encourage continuous education." From a professional sense, any educator, be he an administrator or a teacher, has an obligation toward encouraging his charges in the philosophy that termination of learning is a fallacy. Continuous education is a bulwark of our culture and a prerequisite of a vocationally-competent individual.

The above framework describes an evolving program that has a firm footing but is far from a structured program. Because of this developing status, this framework was considered necessary for several reasons. First, it is descriptive and allows for a codification of material that allows for contemplation and understanding. Secondly, as an administrative tool, it graphically displays areas of concern and concentration and offers a constitution for further study, criticism, and planning. Lastly, the framework offers an instrument that we can turn to and say, *"This we believe."* ■

Evaluate Your Industrial Arts Program Using AVA's New Publication "Evaluation Criteria for Industrial Arts Education"

This instrument will serve a useful purpose for each teacher to make a self evaluation of his program. It will serve as a guide for discussion in workshops, teacher training classes, department meetings, conventions.

This publication was prepared by outstanding leaders in Industrial Arts Education and published by the American Vocational Association. Price of publication: 25c single copy (10% discount on ten or more copies).

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PEOPLE IN THE NEWS

Charles L. Keels Awarded Agriculture Scholarship

The AVA graduate scholarship in agriculture for the 1961-62 school year has been awarded to Charles L. Keels of Seagrove, N. C. The award, sponsored by Prentice-Hall, Inc., carries a value of $500.

Keels

Mr. Keels, 26, is using his scholarship at North Carolina State College to complete graduate study on a Master's degree. For the past five years he was employed as a vocational agriculture teacher in the Seagrove School.

Southern Illinois University Announces Appointments

Southern Illinois University, Carbondale, has announced the appointment of George H. Francis as a lecturer in the Industrial Education Department for the current school year. His specialization is in the area of radio and electronics.

Mr. Francis came from Ball State Teachers College to work toward a Doctor of Philosophy degree at Southern. In addition to teaching industrial arts at several different schools, he has worked as a radio announcer, draftsman and industrial electrician.

Six graduate assistants have also been appointed to the staff of the Industrial Education Department for the 1961-62 year. They include: Gene L. Dahlin, Ray Yeargain, Russell Biekert, Carroll Nelson, Merle Dean Waller and Mrs. Jean Preston.

Industrial Education Council Elects Marjorie Tussing

Miss Marjorie Tussing of Staunton last month was elected president of the Virginia Council of Industrial Education Clubs at the Council's meeting Thursday at Virginia Polytechnic Institute. She is the first woman elected leader of the group which was organized several years ago to expand industrial education.

Miss Tussing

Minneapolis-Honeywell Co. President Elected Board Chairman of Dunwoody Industrial Institute

Paul B. Wishart, President of Minneapolis-Honeywell Regulator Co., was elected Chairman of the Board of Trustees of the William Hood Dunwoody Industrial Institute, Minneapolis, at the annual board meeting in October.

He succeeds Russell H. Bennett who with the exception of an interim period between 1948 and 1953 has headed the Dunwoody board since 1937. Bennett will continue as a board member.

Edwin W. Rawlings, Executive Vice President of General Mills, Inc., was elected a vice President. Re-elected officers included Joseph R. Kingman, Jr., President and Treasurer; George C. Crosby, Vice President; John S. Pillsbury, Jr., Secretary; and John A. Butler, Director of the School and Walter F. Sahlin, Associate Director, as Assistant Secretary and Treasurer. All members of the Board of Trustees were re-elected.

Kingman said that during the 24 years since Russell Bennett had assumed leadership of the Dunwoody Board there had been a total of 102,000 enrollments in the Day and Evening schools. Of this number over 27,000 had received training under programs available to war veterans.

Butler reported a Day School enrollment of 1,605 and Evening School enrollments of 2,358 for the past school year. These enrollments accounted for over 1,400,000 man hours of training in the school's class rooms and shops.

Oklahoma Educator Takes Pakistan Assignment

Dr. H. L. Helton, former chairman of the Industrial Arts Department, Northeastern State College, Tahlequah, Okla., recently accepted a two-year assignment overseas. He is serving in Rawalpindi, West Pakistan, with Oklahoma State University on its Pakistan Technical Education Program.

Dr. W. F. Van Trump has been appointed chairman of the Industrial Arts Department at Northeastern State College. He formerly served as vocational coordinator and director of adult education in Columbia, Mo.

H. M. James Served As Maryland Vocational Chief

Herschel M. James, 57, Director of Vocational Education in Maryland, died Nov. 5.

A graduate of Indiana State Teachers' College, Mr. James taught industrial arts in Indiana and Maryland schools prior to being appointed Supervisor of Industrial Education in Maryland's State Department of Education in 1940. During World War II he served as Department Administrator of the War Production Program. He was appointed Director of Vocational Education in 1958.

Mr. James was a member of AVA, Maryland Vocational Association, National Association of State Directors of Vocational Education, and other educational organizations. He is survived by his wife and one daughter.

McGraw-Hill Names Industrial Education Editor

The McGraw-Hill Book Co. has recently announced the appointment of Don E. Hepler as Industrial Education Editor. He was previously on the faculty of California State College, California, Pa., where he had served as professor of Industrial Arts since 1958. Hepler has a Bachelor of Science degree in Industrial Arts Education from California State College, and the Master of Education degree in Vocational Education from the University of Pittsburgh. In his new position he will direct McGraw-Hill's extensive publications program in the fields of Industrial Arts and Vocational

Hepler

Ohio Honors Dr. Woodin

Dr. Ralph J. Woodin, professor of agriculture education at Ohio State University, was recently honored by the Ohio Vocational Association through the presentation of a life membership in AVA. The award was made in recognition of the outstanding service Dr. Woodin has rendered the state association as executive secretary for the past ten years.

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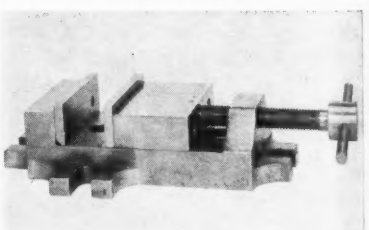
Redesigned to Withstand Years of Service

This new "student-proof" potters wheel has been designed specifically for schools and institutions, but it may also prove ideal for hobbyists and certain commercial pottery operations. Operated by a treadle, the "throwing" head, splash pan, leaning plate and other smaller components are made from aluminum mounted on a steel frame.

The 16-inch throwing head of Elco model 100-A potters wheel will accommoderate large or small work, and the pan measuring 30 x 24 x 8 inches prevents ceramic materials from dropping on the floor. Elco Welding and Engineering Co., 4471 Santa Monica Blvd., Los Angeles 29, Calif.

Machine Tool Vise Kit Offers Shop Project

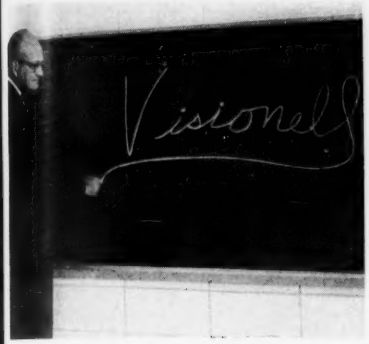


Ideal as a project in various milling, drilling and boring operations, this kit produces a sturdy, attractive milling machine and drill press vise. The kit comes complete with all necessary materials including castings, steel, fasteners, dimensional prints and easy-to-follow instructions.

The entire project can be produced on a standard milling machine, with the exception of the screw, which may be either turned on a lathe or die

chased. The finished vise has the weight and life-time quality of a professionally made, commercial product. U. S. Burke Machine Tool Co., 30 Brotherton Rd., Cincinnati 27, Ohio.

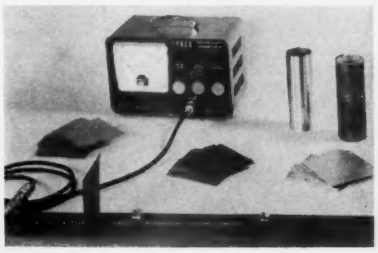
New Chalkboard Provides Easier-to-Clean Surface



Visionell, a new complete line of chalkboards, features a new suede-like surface that is acid resistant and easier to clean. According to the manufacturer, the new boards have a gloss increase factor of less than three units after 30 hours of testing (126,000 strokes).

The boards are available in a variety of backings and 18, 20 or 24 gauge sheets. They can be drilled and sawed 60 to 144 inches and 36, 42 and 48 inch widths are available. Thomas Industries, Inc., Benjamin Division, 207 E. Broadway, Louisville, Ky.

Cenco Develops New Radiation Demonstrator



Offering a versatile educational device in addition to being well suited for use in industry, this Radioactivity Demonstrator is a new, portable, light weight, fully transistorized radiation detection instrument.

It gives both visible and audible indication of radiation, and can be used to demonstrate the statistical nature of the frequency of particle emission from radioactive material, the dependency of the detected radiation on the distance from the source, and the absorption of different types of radiation by various materials.

Two Beta-Gamma sources and a shielded Geiger-Mueller probe with six feet of coaxial cable are a part of the Demonstrator equipment along with a complete experiment kit which includes a calibrated bench and lead and aluminum absorbers. Write for Booklet 307. Central Scientific Co., 1700 W. Irving Park Rd., Chicago 13, Ill.

TRADE TALK

Welding Booth Cover Removes Quickly

Because of the addition of the "Lift-the-Dot" fasteners, the flame-proof cover of this new Can-Pro Mobile Welding Booth can be removed in one minute, the manufacturer announces. The cover snaps on and off the frame.

The frame is ¾ inch metal, six feet high, covered with heavy flame and fire resistant duck. Four heavy duty ball bearing casters make it ready to move at any time. Over-all size of the booth, which can be folded for compact storage, is 6 feet x 9 feet. Can-Pro Corp., Fond du Lac, Wisc.

PRODUCTS EXHIBITED AT AVA TRADE SHOW

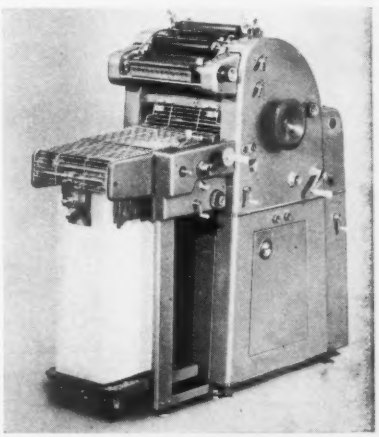
Among the new and interesting products and publications to be shown at the AVA Convention in Kansas City, Mo., Dec. 4-8, will be:

The Gramercy Guild Group, Booth No. 68, will show a combination desk and drafting table (*see photo*). This unit has found wide acceptance due to its versatility and practicability.

The #122 Forge furnace designed specifically for the school shop. This is approximately one-half the size of present forge furnaces and will list at $189. See it at the Johnson Gas Appliance Co. Booth No. 72.

Charles A. Bennett Co., Inc., Booth No. 37 and 38, will show the following new publications: *Exploring Power Mechanics* (1962), by Harold T. Glenn; *Exploring Power Mechanics Workbook* (1962), by Glenn; *Automechanics* (1962), by Harold T. Glenn; *Auto Mechanics Workbook* (1962), by Glenn; *Learning to Read Mechanical Drawings* (Rev. 1961), by Bartholomew & Orr; *Thresholds to Adult Living* (1962), by Hazel Thompson Craig, and *Historic Costume* (Rev. 1961), by Lester & Kerr.

A. B. Dick Company, Booth No. 70 and 71, will present this new large-image offset machine equipped with chain delivery and receding stacker. The chain delivery handles paper sizes from 3″ x 5″ to 11″ x 17″.



from the Public Information Committee

►The National Society for the Study of Education has considered "with interest" our proposal of an NSSE yearbook on vocational education. The NSSE Board has requested that a formal proposal be presented to the Board at their meeting in Atlantic City in February, 1962. The presentation will be made by Dr. Mobley, Dr. Keller and Dr. Barlow representing AVA and PIC. If the proposal is accepted the tentative publication date of the yearbook will be January, 1965. Every member of AVA will want a copy of this yearbook because it will identify the role of vocational education in the "Auto-Tomic" age and will present the values of vocational education to an important educational public.

► A publication of major importance of the PIC will be considered in detail at the Kansas City convention. The tentative title of the publication is *Building A Better Nation Through Vocational Education.* It is intended that this publication will be used by State associations and individuals in connection with the PAVE program. Through PAVE, which means Public Awareness of Vocational Education, we hope to achieve a new renaissance of vocational education in the minds of the American public.

► Because PAVE is an AVA project every member of AVA should have an opportunity to make a contribution to the project and to the publications related to the project. YOU can make a contribution to this project by answering the question, "What are the most important things to tell the American people about vocational education?" Send your ideas to M. L. Barlow, 131 Moore Hall, University of California, Los Angeles 24, California.

This is important and urgent. Your contribution will help us find the common denominators of vocational education—the elements that do not change with geography, administrative decision, or various areas of vocation.

► During the past three years the PIC has prepared six brochures on various aspects of vocational education with the following titles:

Facts You Should Know: Occupational Distribution A Factor in Educational Planning.

Facts You Should Know: Relation of Vocational and Practical Arts Education to Economic Well-Being.

Facts you Should Know: About Distributive Education.

Facts You Should Know: About Agricultural Education In The Public Schools.

Facts You Should Know: Vocational Education Gateway to Opportunity.

Facts You Should Know: New Developments and Their Impacts on Trade and Industrial Education.

These brochures were prepared to tell the story of vocational education to many groups, particularly those groups outside the field of vocational education. These publications are available to *you* for your work in public information and may be obtained from the AVA office for only a few cents a copy. The "Fact's" series can be used in a variety of ways such as: with advisory committees; Boards of Education; parents' groups; local service clubs, and other community groups which you would like to "get the word" about vocational education. These publications are good materials for a local faculty in vocational education to use with their publics.

Information can never become public without exerting some effort to see that it is PUBLIC INFORMATION.

—M. L. Barlow, Chairman, Public Information Committee

FOR THE SCHOOL SHOP

BENCHES
CERAMIC SUPPLIES
DRAWING & DRAFTING SUPPLIES
ELECTRICAL SUPPLIES
FINISHING MATERIALS
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LEATHERWORKING SUPPLIES
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METALWORKING TOOLS
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1-210

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RESEARCH

AGRICULTURE CONTESTS AND AWARD PROGRAMS ILLINOIS.

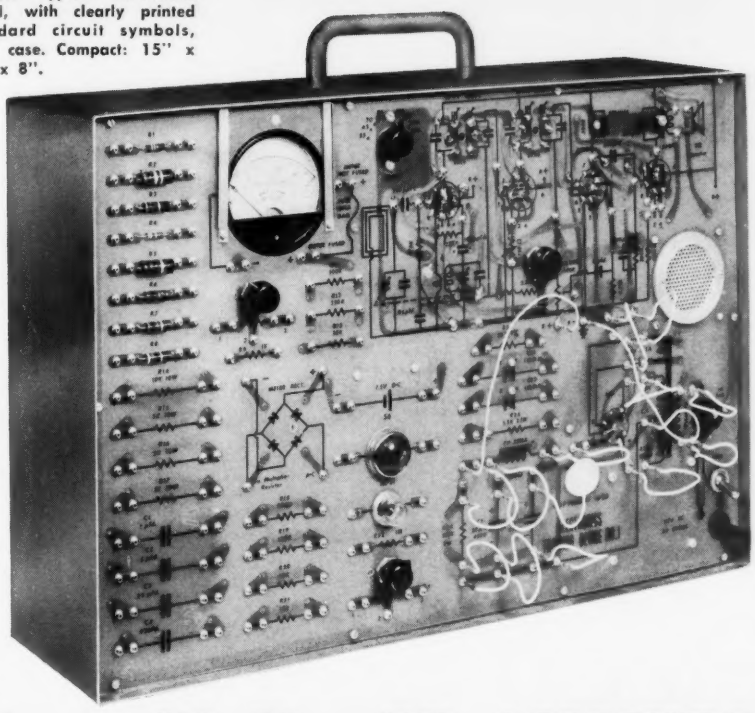
By Paul E. Hemp, University of Illinois.

An excellent and comprehensive study summarizing results and present status of the FFA and vocational agriculture contest and award programs in Illinois. It also asses the attitudes of teachers and students regarding these grams. Dr. Hemp studied the award programs, the fairs shows, the judging contests, the instructional program at local level to prepare for the contest and award progra and the degree of participation in the various programs. research findings in related disciplines that should be sidered in revamping contest and award programs reviewed.

He found that certain contest and award programs see to have much greater educational value than others. He found that certain aspects of some of the contests had bec obsolete. The detailed results of this comprehensive study too voluminous to report in a short review. Persons cerned with contest and award programs should obtai copy of the report of the study from Dr. Hemp.

—Lloyd J. Phipp

FRONT: Typical electronics panel, with clearly printed standard circuit symbols, steel case. Compact: 15" x 21" x 8".

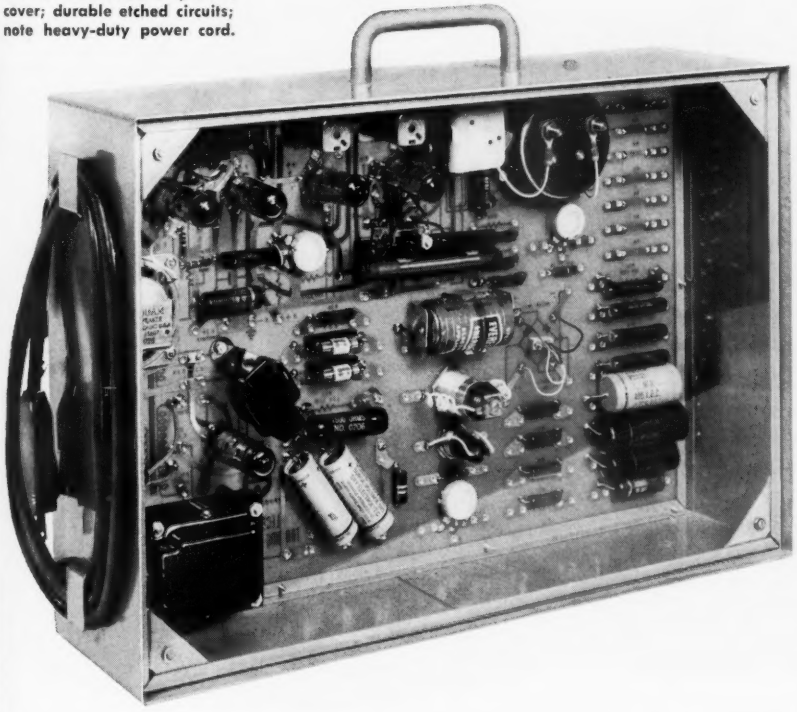


■ Plan your electronics courses now with MONITOR simplified Electronics. Build your program from a series of 40 classroom-tested instruction panels, coordinated with student texts, teachers' guides, and lab manuals for 1- 2- or 3-year courses. All MONITOR equipment is NDEA-approved (under Title III, Science Education, and Title VIII, Technical Education).

■ Each ruggedly constructed, modular training panel is completely self-contained, ready to help the teacher in science or physics classrooms, lab or shop. The lightweight portable panels plug into regular 110-volt outlets. No building alterations are necessary.

Start with Simplified MONITOR® Electronics

REAR: Removable plastic cover; durable etched circuits; note heavy-duty power cord.



■ With MONITOR simplified Electronics, you can select only the equipment you need, with the aid of experienced electronics teachers. Nationwide distribution by the producers of famous MONITOR Electronic Language Laboratories. Write for course outlines, planning costs, free catalog and the name of your area distributor.

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On Display 1961 AVA Convention Booth 24

DELTA Metal Lathes help you do more— with added safety, extra capacity

You teach with the tools they'll use in industry when you use Delta Metal Lathes. 11" Cabinet models (like those shown above) are used extensively in tool rooms and precision experimental work in metalworking shops across the country.

3555

FREE CATALOG

Complete specifications on the entire line of Delta Metal Lathes and full range of accessories. Write: Rockwell Manufacturing Company, Delta Power Tool Division, 414M North Lexington Ave., Pittsburgh 8, Pa.

You can choose any model of Delta's famous 10" metal cutting lathe, the new 'Long Bed' 10" lathe (with a big 36" capacity between centers) or the husky 11" lathe to help you meet your particular school shop needs. Every one is engineered to give you an exclusive combination of features that make it the big value in its class.

You'll recognize the teaching advantages of variable speed drive, quick change gear box and the extra big collet capacity. And you'll appreciate the two new safety accessories for all Delta 10" lathes: Mechanical Back Gear Lock-out Kit and Magnetic Starter Electrical Disconnect Switch Kit. Used together, these guard students from moving gears and guard against damage to the machine. For back gear operation, student must release the lock-out mechanism. To do this, the headstock cover must be raised—this action shuts off the motor automatically.

Call or visit your Delta Industrial Distributor (listed under "TOOLS" or "MACHINERY" in the Yellow Pages) for a demonstration of the many quality features these lathes offer to help your students learn operating techniques quickly, safely and easily.

DELTA INDUSTRIAL TOOLS

another fine product by

ROCKWELL